

# **EPIC TRAINING AND CONSULTING SERVICES LIMITED**

## on behalf of PROSKILLS

### Standards and Qualifications Framework

## **Processing Operations for the Extractive and Minerals Processing Industries**

### **National Occupational Standards**

#### **Introduction**

This document contains the National Occupational Standards for **Processing Operations for the Extractive and Minerals Processing Industries**, together with the recommended National and Scottish Vocational Qualifications structures. Assessment strategies, and key/core skills signposting for these standards are available separately.

The document has been developed by EPIC Training and Consulting Services Limited on behalf of Proskills (the Sector Skills Council in development for the processing and manufacturing industries), as part of the Proskills Annual Standards Plan 2003-2004. The National Occupational Standards and Qualifications replace those for Process Operations in the Extractives and Minerals Processing Industries, and have been approved by UKCG for release from March 2005.

These National Occupational Standards apply **only** to the Extractive and Minerals Processing Industries. They were developed for and apply to the operation and control of specifically designated plant and machinery for those processes which add value to as extracted (by any form of quarrying, dredging or mining) solid rocks and minerals, and the recycling of materials to replace extracted materials (e.g. glass, slag, and construction and demolition waste recycled for aggregates). The processing operations fall into one of ten categories;

1. **Crushing/Screening/Washing**  
*The reduction in size of as extracted material, grading by size and cleaning of that material. This would also include blending or adding water to meet customer specification.*
2. **Drying**  
*The application of heat to remove excess water from the as extracted or processed material*
3. **Concrete/Mortar Production**  
*The production of concrete, mortar and similar materials, by batch or continuous production.*
4. **Asphalt/Coated Materials Production**  
*The production of asphalt and other similar coated materials by batch or continuous production*
5. **Density/Fluid Separation**  
*Includes all processes to increase the purity and quality of the rock or minerals, or to separate different minerals utilising their differing physical properties (e.g. weight, density, shape, solubility), which may be a dry process or with the assistance of a fluid (e.g. air, water, other liquids).*

- 6. Chemical Separation**  
*The separation of rocks or minerals utilising their different chemical properties, or differing reactivity, which may involve the introduction of another chemical substance or substances to select the desired product. Note; this may often be combined with Density/fluid separation. This will also include those operations used to release the separated mineral from the separating additive*
- 7. Forming**  
*Moulding, forming, compressing or similar operations to a shape to meet customer requirements or aid transportation*
- 8. Heat Treatment**  
*The application of higher levels and duration of heat to change the physical or chemical properties of the rock or mineral, e.g. calcining*
- 9. Sawing/Splitting/Shaping**  
*Typically the use of machinery to change the physical size and/or shape of a piece of dimensional stone to meet customer requirements*
- 10. Packaging**  
*The partial or total enclosure of the rock or mineral, which would normally be done to aid storage or transportation, or to meet customer requirements.*

Note; these National Occupational Standards do not apply to processing operations in relation to the extraction of petrochemicals or water, or of the processing of foodstuffs, the manufacture of chemicals or pharmaceuticals, which have their own specific National Occupational Standards. Also, they do not apply to hand operations e.g. hand shaping of slates, although many of the operations will involve some manual work e.g. the off-loading of filled bags from a packaging plant. Similarly sawing/splitting/shaping does not include stonemasonry.

## Units for Processing Operations for the Extractive and Minerals Processing Industries

UNIT P1	Assist in the efficiency of the workplace
UNIT P3	Contribute to a positive health, safety and environmental culture in extractive industries sites
UNIT P4	Assist with the specified minerals processing activity
UNIT P5	Use tools and equipment for routine and predictable minerals processing requirements
UNIT P7	Process materials to specification
UNIT P9	Receive, store and handle materials for processing
UNIT P10	Carry out routine maintenance on plant and equipment
UNIT P11	Contribute to the deployment of plant and equipment for processing operations
UNIT P12	Solve processing problems
UNIT P13	Run and control the operations of processing plant

### Imported Units

UNIT P2	Conform to general workplace safety	ConstructionSkills unit VR 01
UNIT P6	Conform to efficient work practices	ConstructionSkills unit VR 02
UNIT P8	Carry out simple testing operations	LATA Unit 2.03
UNIT P14	Manage the use of physical resources	1997 Mgt Stds Unit B2
UNIT P15	Lead the work of teams & individuals to achieve objectives	1997 Mgt Stds Unit C12

### Proposed Qualification Structure for awards

Ref	Level 1	Level 2	Level 3
	4 Mandatory Units (M)	4 Mandatory Units (M)	6 Mandatory Units (M)
Unit	Status	Status	Status
P1	M		
P2	M	M	M
P3			A*
P4	M		
P5	M		
P6		M	
P7		M	
P8		A*	A*
P9	A*	A*	A*
P10	A*	A*	A*
P11		A*	M
P12			M
P13		M	M
P14			M
P15			M

M = Mandatory – Units that MUST be included in an award

\*A = Additional - Additional Units (A) are not a requirement of an award. However individuals and/or their employers may find them helpful to enhance the scope of the award, reflecting broader job roles and additional competences that have been acquired.

**UNIT P1: ASSIST IN THE EFFICIENCY OF THE WORKPLACE****Structure****Element 1.1 : Maintain a clean and tidy workstation****Element 1.2 : Maintain tools and equipment****Element 1.3 : Organise own work and maintain standards****Unit Overview**

This unit is designed to demonstrate your competence in assisting in the efficiency of your workplace by maintaining a clean and tidy workstation, removing surplus materials, litter and debris in accordance with instructions. Disposing of the waste materials and where appropriate dealing with hazardous waste as instructed. You will demonstrate enhanced efficiency by ensuring the tools and equipment you use are maintained in a usable and clean condition. You will also demonstrate your competence to organise your own work within the overall work activity. Standards of work are also inherent in the competences recognised through this unit.

Workplaces covered by this Unit include any where rock, solid minerals, or products of these are processed or stored.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 The approved procedures and practices in the context of the operations you are carrying out, your work activity and your workplace environment (organisational; regulatory; emergency; operational)
- 2 Your responsibilities under the Health and Safety Statutory Requirements

## **UNIT P1: ASSIST IN THE EFFICIENCY OF THE WORKPLACE**

### **Element 1.1 : Maintain a clean and tidy workstation**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 Your work station and related working areas are maintained in a clean and tidy condition so that it complements the work activity and the surrounding environment
- 2 hazardous and non-hazardous waste and debris are disposed of in designated receptacles or locations in accordance with instruction and approved procedures and practices and in compliance with regulatory requirements
- 3 Work tools and equipment not in use are stored and housed safely in the designated place
- 4 Work materials and components are stored in accordance with approved procedures and practices
- 5 Harmful materials are removed or are reported to an authorised person for further action
- 6 You refer problems and conditions outside the your responsibility to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 The types of hazardous and non-hazardous waste associated with your work
- 2 The requirements and methods for storing materials and components for your work
- 3 The procedures for disposing of surplus material and waste
- 4 The methods of storing work tools and equipment

## **UNIT P1: ASSIST IN THE EFFICIENCY OF THE WORKPLACE**

### **Element 1.2 : Maintain tools and equipment**

#### **Standards of Performance**

In achieving this element you will have ensured that:

1. Your tools and equipment are maintained in a clean and usable condition
2. Powered equipment is shut down and isolated from the power source prior to any maintenance
3. Equipment you use is maintained in accordance with the manufacturers' recommendations
4. Your tools and equipment are confirmed as operational and safe for use
5. Damage to your tools and equipment is reported to an authorised person
6. Problems and conditions outside your responsibility are referred to an authorised person
7. Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types of tools and equipment used for your work and for sector operations
2. The procedures you must follow when a fault is identified with tools and equipment

**UNIT P1: ASSIST IN THE EFFICIENCY OF THE WORKPLACE****Element 1.3 : Organise own work and maintain standards****Standards of Performance**

In achieving this element you will have ensured that:

- 1 Your work is organised to comply with instructions and the agreed schedules
- 2 Your working methods are in accordance with approved procedures and practices and optimise the use of your time
- 3 Your own work is co-ordinated with other relevant personnel and related activities as required
- 4 Your suggestions for improvements to work methods are referred to an authorised person for confirmation and agreement on the action to be taken
- 5 Your work is done to the agreed standards and is in accordance with the specification and the organisational policy
- 6 Deviations in standard or specification are agreed with an authorised person
- 7 Work which may be detrimental to safety or the environment is referred to the appropriate person(s) in accordance with organisational and operational procedures
- 8 Waste and debris are removed and disposed of in accordance with approved procedures and practices
- 9 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The work requirement and specifications
2. The terminology used with the work activity
3. The work methods employed in the context of the work activity involved
4. Categories and uses of materials in your work activity
5. The processes and sequence of events for your work activity
6. The standards relative to your work activity and your workplace environment

**UNIT P3    CONTRIBUTE TO A POSITIVE HEALTH, SAFETY AND ENVIRONMENTAL CULTURE IN EXTRACTIVE INDUSTRIES SITES****Structure**

**Element 3.1:    Contribute to a positive health, safety and environmental culture in extractive industries sites**

**Element 3.2:    Provide advice on the training required for improving health, safety and environmental performance**

**Unit Overview**

This unit is about encouraging a positive culture within the extractive industries site/s in relation to health, safety and the environment. It is also concerned with promoting the achievements of the site and organisation to all people who are under the control of the supervisor, encouraging them to understand their role and responsibilities and how they can bring about improvements to health, safety and environmental performance. To assist in achieving these ends appropriate training must be identified, recommended, implemented and then evaluated.

This unit is for you if you are:

- A supervisor with responsibility for a section or sections of an operational site working under the direction of a manager

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. communication, involvement and motivation
2. health, safety and environmental training requirements in relation to the area under your control
3. health, safety and environmental legislation in relation to the area under your control
4. identification of training needs
5. how to plan training
6. how to encourage feedback
7. record keeping

## **UNIT P3    CONtribute to a positive health, safety and environmental culture in extractive industries sites**

### **Element 3.1:    Contribute to a positive health, safety and environmental culture in extractive industries sites**

#### **Standards of Performance**

In achieving this element you will have ensured that:

1. you present the benefits of continuous improvements to health, safety and environmental performance clearly, accurately and in line with the organisation's policies
2. you take opportunities to promote awareness and achievements in health, safety and environmental matters using effective methods of communication
3. the information you provide on health, safety and environmental achievements is accurate and up to date
4. you encourage individuals in the workplace to take an active role in the drive for improved health, safety and environmental performance
5. you encourage individuals to offer suggestions, ideas and views on improvements to health, safety and environmental performance
6. you enable individuals in the workplace to understand their health, safety and environmental responsibilities and help them to make an active contribution
7. you give individuals the opportunity to seek clarification of any areas of concern

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

Benefits of improved health, safety and environmental performance

1. the benefits to individuals and the organisation from improved health, safety and environmental performance
2. the consequences of failing to improve health, safety and environmental performance
3. the benefits of participation of persons at work

Communication

4. how to communicate effectively
5. how to identify and use effective opportunities to promote awareness, understanding of, and enthusiasm for health, safety and environmental issues
6. sources of supporting information, resources and materials
7. how best to publicise achievements
8. the range of available presentational techniques and how to use them effectively

Organisational context

9. the organisation's procedures for publicising health, safety and environmental matters
10. the organisation's achievements in health, safety and environmental management
11. the organisations record keeping requirements

Health, safety and environmental management

12. examples of best practice and best available techniques
13. key aspects of current and proposed legislation applicable to the workplace under your supervision
14. workplace health, safety and environmental performance and identified improvement needs
15. details of operational activities and associated hazards and risks

## **UNIT P3    CONtribute to a positive health, safety and environmental culture in extractive industries sites**

### **Element 3.2:    Provide advice on the training required for improving health, safety and environmental performance**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 .you encourage individuals to identify the skills and knowledge they need to work safely and avoid causing harm to the environment
- 2 training is identified that satisfies workplace needs
- 3 training is identified that meets the occupational needs of individuals
- 4 you agree the identified training with your manager
- 5 effective training is implemented and monitored in accordance with an agreed training plan
- 6 you encourage individuals to provide useful feedback on training activities
- 7 clear individual training records are kept which conform to company requirements
- 8 you keep up to date with developments in health, safety and environmental legislation which affect the workplace under your supervision

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 the organisation's record keeping requirements
- 2 how to communicate effectively
- 3 how to identify the skills and knowledge individuals require
- 4 how to plan training
- 5 how to encourage feedback and assess effectiveness of training

Training requirements in relation to:

- 6 health and safety induction
- 7 environmental induction
- 8 refresher/retraining
- 9 use of fire extinguishers
- 10 safe methods of manual handling
- 11 incident and emergency procedures
- 12 use of personal protective equipment
- 13 safe use of mobile plant
- 14 safe use of fixed plant
- 15 handling of waste to include recycling
- 16 reporting of problems in connection with emissions to air, releases to water and contamination to land
- 17 material and product handling to include control and reporting of spills
- 18 key aspects of legislation applicable to the workplace under your supervision
- 19 where applicable training requirements in relation to use of explosives

**UNIT P4: ASSIST WITH THE SPECIFIED MINERALS PROCESSING ACTIVITY****Structure****Element 4.1: Receive information and instruction to assist the work activity****Element 4.2: Move and store materials and components to assist the work activity****Element 4.3: Assist the work activity to requirements****Unit Overview**

This unit is designed to demonstrate your competence in assisting with your specified minerals processing activity. You will interpret your work requirement from your instructions and specifications: to assist with the movement and storing of materials and components; and to assist with and support the activity as required.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

Note: These standards would apply to those who work as a member of a team, or work with and support specific occupational disciplines

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 The approved procedures and practices in the context of your operations, your work activity and your workplace environment (organisational; regulatory; emergency; operational)
- 2 Your responsibilities under the Health and Safety Statutory Requirements

**UNIT P4: ASSIST WITH THE SPECIFIED MINERALS PROCESSING ACTIVITY**

**Element 4.1: Receive information and instruction to assist the work activity**

**Standards of Performance**

In achieving this element you will have ensured that:

- 1 You receive and confirm your understanding of information and instructions for the work activity
- 2 Where situations arise that are at variance with your information and instructions, these are reported and referred to an authorised person
- 3 You confirm and agree amendments and changes to information and instruction with the appropriate person(s) in accordance with approved procedures and practices
- 4 Where information is unclear and safety is not compromised you seek further clarification of information and instructions
- 5 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 The types and purpose of information and instructions
- 2 Changing circumstances that affect your work activity

**UNIT P4: ASSIST WITH THE SPECIFIED MINERALS PROCESSING ACTIVITY****Element 4.2: Move and store materials and components to assist the work activity****Standards of Performance**

In achieving this element you will have ensured that:

- 1 You move and store materials and components safely to instruction and the work requirements
- 2 You identify, make safe or remove hazardous materials and components in accordance with approved procedures and practices
- 3 Movement of materials and components is carried out without endangering yourself or others in accordance with approved procedures and practices
- 4 You dispose of waste and harmful materials in a manner that minimises danger to the environment in accordance with approved procedures and practices
- 5 Your work area is tidily maintained in accordance with customer and organisational requirements
- 6 You refer problems and conditions outside your responsibility to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types of materials and components in the context of your work activity
2. The methods for transferring and storing materials and components relevant to your activity
3. The types of hazardous materials (including toxic and non-toxic)
4. The types of waste and harmful materials

**UNIT P4: ASSIST WITH THE SPECIFIED MINERALS PROCESSING ACTIVITY**

**Element 4.3: Assist the work activity to requirements**

**Standards of Performance**

In achieving this element you will have ensured that:

- 1 You provide assistance with the work activity to instruction and in accordance with requirements
- 2 Your work done is to the required standards and specification of your work requirement
- 3 Tools and equipment you use in your work activity are safe and used in accordance with the approved procedures and practices
- 4 Your work is carried out in a manner to help minimise damage and disruption to the surrounding environment
- 5 Problems and conditions outside your responsibility are referred to an authorised person
- 6 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The specified work activity involved
2. The types of materials and components in the context of your work activity
3. The tools and equipment used in your work activity

**UNIT P5: USE TOOLS AND EQUIPMENT FOR ROUTINE AND PREDICTABLE MINERALS PROCESSING REQUIREMENTS****Structure****Element 5.1: Prepare tools and equipment for use****Element 5.2 : Use tools and equipment****Unit Overview**

This unit is designed for you to demonstrate competence in using basic tools and equipment, some of which may be power operated, for routine and predictable requirements, in support of minerals processing activities. This unit builds on your general competence in complying with health and safety in your workplace and seeks to extend that into regular practices and procedures when you use tools and equipment. Whether dealing with static equipment, hand-operated tools or carrying out predictable and routine operations with tools and equipment and small plant, the standard identifies good practice procedures that you need to employ by habit.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

NOTE: These standards are aimed at those using basic tools and equipment within their occupational area. This may be occasionally or more regularly, whatever the purpose and frequency of use it is intended to ensure tools and equipment are used correctly and safely. There are several categories of basic tools and equipment across all sectors. Those that typically fall into this area would be those used for cleaning, clearing, moving materials and basic maintenance. These standards relate at a higher level to those for Specialised Plant and Machinery Operations

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Approved procedures and practices in the context of the operations, the work activity and the workplace environment (organisational; regulatory; emergency; operational)
2. Responsibilities under the Health and Safety Statutory Regulations

**UNIT P5: USE TOOLS AND EQUIPMENT FOR ROUTINE AND PREDICTABLE MINERALS PROCESSING REQUIREMENTS**

**Element 5.1: Prepare tools and equipment for use**

**Standards of Performance**

In achieving this element you will have ensured that:

- 1 You identify and confirm operations requiring the use of tools and equipment in accordance with work instructions
- 2 You carry out pre-start inspections on the tools and equipment in accordance with approved procedures and practices
- 3 You identify any defect(s) with the tools and equipment and refer them to an authorised person
- 4 You confirm that tools and equipment are safe, correct and ready for use in accordance with the work requirements and approved procedures and practices
- 5 Problems and conditions outside your responsibility are referred to an authorised person
- 6 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Types of tools and equipment to carry out the specified work
2. The types of work requirements that apply in the context of the equipment
3. Pre-operational procedures associated with the tools and equipment

**UNIT P5: USE TOOLS AND EQUIPMENT FOR ROUTINE AND PREDICTABLE MINERALS PROCESSING REQUIREMENTS**

**Element 5.2 : Use tools and equipment**

**Standards of Performance**

In achieving this element you will have ensured that:

- 1 You use and operate tools and equipment to the work requirement
- 2 You carry out operations safely in accordance with specifications and approved procedures and practices
- 3 You identify and record defects in performance and report them to the appropriate person(s)
- 4 You refer problems and conditions outside your responsibility to an authorised person
- 5 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types of tools and equipment and associated attachments in the context of the work activity to be carried out
2. The operating procedures for the tools and equipment you are using
3. The appropriate handling techniques for the tools and equipment you are using
4. The tools and equipment you use are left in good order, safe and secure in accordance with approved procedures and practices
5. The types of performance defects associated with the tools and equipment you are using

**UNIT P7      PROCESS MATERIALS TO SPECIFICATION****Structure****Element 7.1 : Verify material inputs****Element 7.2 : Process materials to specification****Element 7.3 : Verify output quantity and quality****Unit Overview**

This unit is designed to demonstrate your competence to manage the quality and quantity of rock, minerals or mineral products being processed. For quality this would involve you monitoring the material inputs, the transformation process and the quality of outputs. You will be working to a processing specification and this will involve the regular visual monitoring of the transformation process at specified stages and intervals to ensure outputs remain within specified qualitative parameters. Monitoring the quantity of materials processed is also included.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. How to interpret specifications for materials processing
2. How to verify materials quality and quantity
3. Approved procedures and practices in the context of your operations, your work activity and your workplace environment (organisational; regulatory; emergency; operational)
4. Your responsibilities under the Health and Safety Statutory Requirements

**Note 1:** If the processing operation requires the collecting of samples and/or testing using specialist measuring and sampling equipment you should consider also taking UNIT PO8 - CARRY OUT SIMPLE TESTING OPERATIONS, which is an Additional Unit

**Note 2:** This Unit does not apply to operations in which there are skilled hand tool operations involved

**UNIT P7      PROCESS MATERIALS TO SPECIFICATION****Element 7.1 : Verify material inputs****Standards of Performance**

In achieving this element you will have ensured that:

- 1 Materials for processing are of the type and condition specified
- 2 Sufficient materials are available to complete the processing operation
- 3 Relevant provisions for handling and maintaining the condition of input materials are in place
- 4 You promptly deal with variances in the quality and quantity of the materials to be processed and take appropriate action in accordance with operational and organisational procedures
- 5 You visually check material inputs at required time intervals
- 6 Problems and conditions outside your responsibility are referred to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

- 1 The types and characteristics of the materials to be processed
- 2 Conditions that must be maintained for processing the materials
- 3 How to estimate the quantities required to complete a processing operation
- 4 Provisions that must be made for maintaining the condition of materials for processing
- 5 Provisions that must be made for safe handling of materials
- 6 Visual indicators regarding the condition of material inputs
- 7 The environmental considerations associated to the specified processing operations

**UNIT P7      PROCESS MATERIALS TO SPECIFICATION****Element 7.2 : Process materials to specification****Standards of Performance**

In achieving this element you will have ensured that:

- 1 Instructions and specifications for the processing operation are confirmed
- 2 You confirm that all necessary services are on line and operational for the processing requirements
- 3 All control instrumentation and monitoring devices are confirmed live, are correctly calibrated and are displaying the expected information for the process operation
- 4 Feed rates of materials comply with the specification and are within the capacity of the processing plant
- 5 Interruptions to and inconsistencies in feed rates and processing operations are dealt with promptly and in accordance with operational and organisational procedures
- 6 You visually check materials being processed at specified locations and at required time intervals
- 7 You promptly deal with faults and variances in the processing operation and take appropriate action in accordance with operational and organisational procedures
- 8 Problems and conditions outside your responsibility are referred to an authorised person
- 9 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types of processing operation and the characteristics of each transformation process
2. The types and purposes of process monitoring devices and methods for verifying accuracy of and calibrating these
3. Conditions that must be maintained for processing materials
4. On-line services necessary for maintaining the processing operation
5. Types of process control instrumentation and their purpose
6. The methods of identifying faults and variances during process operations
7. Provisions that must be made for maintaining the condition of materials during the processing operation
8. Visual indicators regarding the condition of materials being processed
9. The precautions to be taken during processing operations
10. The environmental considerations associated to the specified processing operations

## **UNIT P7      PROCESS MATERIALS TO SPECIFICATION**

### **Element 7.3 : Verify output quantity and quality**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 Quantity and quality of materials processed are monitored and confirmed in accordance with instructions and the specification
- 2 Quantity and quality of materials processed are consistent with the production schedule
- 3 You respond promptly to variations in quantity and quality of materials processed and take appropriate action in accordance with operational and organisational procedures
- 4 You record quantities and quality of materials processed in accordance with operational and organisational requirements
- 5 Problems and conditions outside your responsibility are referred to an authorised person
- 6 You work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The means and method of monitoring quantity and quality
2. The methods of recording quantities processed
3. The methods of recording quality of materials processed
4. The instructions and specifications relative to the processing requirement

**UNIT P9 RECEIVE, STORE AND HANDLE MATERIALS FOR PROCESSING****Structure****Element 9.1 : Receive materials and place into intermediate storage****Element 9.2 : Handle materials****Unit Overview**

This unit is designed to demonstrate your competence to receive, store and handle materials (rocks, minerals, mineral products, additives and other materials used in processing these or to operate the plant/equipment) for processing. It covers receiving materials and placing into intermediate storage, handling and using materials.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types and uses of materials - liquids, solids, gases (in the context of the specified process)
2. Hazards associated with particular materials
3. The methods of storage and reasons for rotation of stock, where applicable
4. The precautions to take in handling materials
5. The types and uses of protective clothing and safety equipment
6. Emergency procedures in the event of - spillage of materials, bodily contact, inhalation, ingestion
7. The potential hazards relating to materials and methods of avoiding them
8. The methods of safe disposal of waste, including hazardous waste
9. Manufacturers recommended procedures and practices for hazardous materials
10. The approved procedures and practices in the context of the operations, the work activity and the workplace environment (organisational; regulatory; emergency; operational)
11. Your responsibilities under the Health and Safety Statutory Requirements

## **UNIT P9      RECEIVE, STORE AND HANDLE MATERIALS FOR PROCESSING**

### **Element 9.1 : Receive materials and place into intermediate storage**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 You identify materials as the required type and quantity to meet specifications and production schedules
- 2 You carry out the handling of materials safely and in accordance with the manufacturer's recommended procedures and practices
- 3 Storage of materials conforms with manufacturer's recommendations and the established procedures and practices
- 4 Access to materials is only available to authorised persons
- 5 Stocks are rotated and are within specified use-by dates, where appropriate
- 6 Stock records are accurate, legible and in a required format
- 7 Materials that are out of date or surplus to requirement are disposed of safely, following approved procedures and practices
- 8 Problems and conditions outside your responsibility are referred to an authorised person
- 9 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

See Unit Summary

## **UNIT P9      RECEIVE, STORE AND HANDLE MATERIALS FOR PROCESSING**

### **Element 9.2 : Handle materials**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 You handle materials safely in accordance with the manufactures recommendations and approved procedures and practices
- 2 In the event of spillage's or loss of materials you immediately taken appropriate action
- 3 You take safeguards to protect yourself, others and the surrounding environment when handling materials
- 4 Quantity and application of materials during processing operations are in accordance with specifications and manufacturers' recommendations
- 5 Surplus materials are disposed of safely in accordance with approved procedures and practices
- 6 Problems and conditions outside your responsibility are referred to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

See Unit Summary

**UNIT P10      CARRY OUT ROUTINE MAINTENANCE ON PLANT AND EQUIPMENT****Structure****Element 10.1 : Prepare for carrying out routine maintenance****Element 10.2 : Carry out routine maintenance requirements****Unit Overview**

This unit is designed to demonstrate your competence to carry out routine maintenance on plant and equipment used to process or store rocks, minerals, or mineral products. It recognises your competence to follow instructions and adopt safe working practices to prepare for and carry out routine maintenance operations to plant and equipment in general use.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The types of plant and equipment
2. The different sources for information and instruction relative to the routine maintenance requirements for the plant and equipment type (e.g. method statements; oral and written instructions; manufacturers technical information; lubrication charts)
3. The materials and substances type and purpose
4. The application method for the relative type of materials and substances
5. The types of records and documentation to be maintained
6. The approved procedures and practices in the context of the operations, the work activity and the workplace environment (organisational; regulatory; emergency; operational)
7. Your responsibilities under the Health and Safety Statutory Requirements

## **UNIT P10      CARRY OUT ROUTINE MAINTENANCE ON PLANT AND EQUIPMENT**

### **Element 10.1 : Prepare for carrying out routine maintenance**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 You confirm routine maintenance requirements with the instructions and the operational requirements of the plant and equipment type
- 2 You check information and instruction for the maintenance requirements for sufficiency and clarity and where information is inadequate and unclear, you promptly seek clarification
- 3 You identify and select the type, quality and quantity of materials and substances in compliance with information and instructions
- 4 You confirm you have appropriate tools and equipment that are suitable to use and are available for the routine maintenance activity
- 5 You maintain records and documentation in accordance with operational and organisational requirements
- 6 Problems and conditions outside your responsibility are referred to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The scope and interpretation of the routine maintenance requirements

## **UNIT P10      CARRY OUT ROUTINE MAINTENANCE ON PLANT AND EQUIPMENT**

### **Element 10.2 : Carry out routine maintenance requirements**

#### **Standards of Performance**

In achieving this element you will have ensured that:

- 1 You carry out maintenance activities in accordance with information and instructions
- 2 You apply the type, quality and quantity of materials and substances in accordance with the instructions and operational requirements
- 3 You use tools and equipment safely in accordance with the maintenance requirement and approved procedures and practices
- 4 Excess and wastage of materials and substances are minimised and cleared during the maintenance activity
- 5 You maintain records and documentation in accordance with operational and organisational requirements
- 6 Problems and conditions outside your responsibility are referred to an authorised person
- 7 Your work is carried out to approved procedures and practices and in compliance with statutory requirements

#### **Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The procedures for correct storage and handling of materials and substances

**UNIT P11      CONTRIBUTE TO THE DEPLOYMENT OF PLANT AND EQUIPMENT FOR  
PROCESSING OPERATIONS****Structure****ELEMENT 11.1: Contribute to Maintaining the Availability of Plant and Equipment****ELEMENT 11.2: Contribute to Allocating and Deploying Plant and Equipment****Unit Overview**

This unit is designed to demonstrate your competence in the deployment of plant and equipment for minerals processing operations. This unit covers the monitoring of plant and equipment requirements and its availability; the allocation and deployment of plant and equipment on sites and the provision of information and guidance to support those who will use it.

Plant and equipment covered by this unit may be mobile or static and relate to extractive and mineral processing operations. and will include health and safety equipment required for the operation of the plant and equipment

You will require a range of knowledge and understanding including: the normal operational parameters of the plant and equipment you are allocating and deploying or re-deploying; the conditions appropriate to its safe and efficient operation and use; the servicing and maintenance schedules;; conditions applying to operators including the health and safety regulations applying to operation and maintenance.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. **communication** of information about plant and equipment to others

**UNIT P11      CONTRIBUTE TO THE DEPLOYMENT OF PLANT AND EQUIPMENT FOR PROCESSING OPERATIONS****ELEMENT 11.1: Contribute to Maintaining the Availability of Plant and Equipment****Standards of Performance**

In achieving this element you will have ensured that:

1. Within your area of responsibility, a schedule of current and forecast plant and equipment requirements is prepared and maintained
2. Plant and equipment is obtained and verified as fit for purpose, in accordance with organisational procedures
3. Security and storage arrangements and handling and operating procedures minimise risks of loss and damage to plant and equipment.
4. Schedules for routine maintenance are maintained that optimise the availability of plant and equipment.
5. Materials and tools required for routine maintenance and repair are available when required
6. A schedule of available and competent maintenance and repair contractors is maintained, in accordance with organisational procedures
7. In the event of breakdown, loss or changed requirements, alternative and cost effective sources of plant and equipment supply are identified.
8. Proposals for improving the acquisition, utilisation and maintenance of plant & equipment are passed to the appropriate people.

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

**Methods to:**

1. Prepare schedules and forecasts of plant and equipment requirements
2. Verify plant and equipment as fit for purpose
3. Optimise the continued utilisation of plant and equipment

**Facts and data about:**

4. Storage and security arrangements
5. Handling and operating procedures
6. Maintenance scheduling
7. Supplier's and statutory requirements for maintenance, inspection, examination, testing of plant and equipment, and certification where required
8. Materials and tools required for routine maintenance of plant and equipment
9. Sources of plant and equipment
10. Sources of plant and equipment maintenance support

**UNIT P11      CONTRIBUTE TO THE DEPLOYMENT OF PLANT AND EQUIPMENT FOR PROCESSING OPERATIONS****ELEMENT 11.2: Contribute to Allocating and Deploying Plant and Equipment****Standards of Performance**

In achieving this element you will have ensured that:

1. You allocate and deploy sufficient plant and equipment of the appropriate type to meet operational requirements, in accordance with instructions.
2. You identify and assess potential health and safety hazards and specify and advise on safeguards that will minimise risk.
3. You monitor operating conditions to ensure that plant and equipment remains appropriate for the task and take appropriate action should unacceptable variances arise.
4. You communicate instructions to appropriate people for the erection, installation and operation of plant in compliance with statutory requirements and within the limits of your responsibility,
5. You maintain appropriate systems of recording plant and equipment allocation, utilisation and performance.

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

**Methods to:**

1. Allocate and deploy plant to meet operational requirements
2. Assess health and safety risks
3. Identify potential hazards and specify safeguards
4. Assess impact of variances in operating conditions on the performance of plant
5. Record plant and equipment allocation, utilisation and performance

**Facts and data about:**

6. Types and uses of plant and equipment, including performance specifications
7. Types of plant utilisation recording systems
8. Types of variance in operating conditions
9. Types of potential hazard and risk
10. Safe working practices
11. Relevant statutory requirements

## **UNIT P12      SOLVE PROCESSING PROBLEMS**

### **Structure**

**Element 12.1 : Recognise the existence of problems and identify their underlying causes**

**Element 12.2 : Select standard solutions to routine problems**

**Element 12.3 : Implement approved solutions to routine problems**

**Element 12.4 : Follow up the outcomes of routine problem solving activity**

### **Unit Overview**

This unit is designed to demonstrate your competence in solving problems associated with minerals processing operations. This unit covers recognising the existence of problems, diagnosing their underlying causes, selecting standard solutions and implementing approved solutions to routine problems. You will require a range of knowledge and understanding including: the normal operational parameters of any system you are operating, purpose of approved procedures; identifying the correct solutions to problems; health and safety regulations; effective communication; quality assurance; and operational efficiency.

During this work the candidate must take account of the relevant operational requirements and safe working practices.

**UNIT P12 SOLVE PROCESSING PROBLEMS****Element 12.1 : Recognise the existence of problems and identify their underlying causes****Standards of Performance**

In achieving this element you will have ensured that:

- 1 You recognise and confirm the existence of problems
- 2 You analyse all available information to identify the underlying causes of problems
- 3 You correctly identify the underlying causes of problems
- 4 You fully and accurately estimate the effects of problems upon the system and any interactions with other systems
- 5 You ascertain or estimate the time available, priority and urgency of required action
- 6 You define problems in such detail as necessary to enable them to be understood
- 7 You take all action necessary to contain possible adverse effects of problems upon the system and any interactions with other systems without unnecessary delay
- 8 Where possible and permissible, parallel or alternative systems you promptly activate them to ensure continuing operation
- 9 Where the problem is beyond your area of expertise and responsibility, you promptly refer problems to the responsible authority for resolution
- 10 The time you take to identify the underlying causes of problems is appropriate to the nature and complexity of the problems

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. How to explain the essential features of any system in which they are operating
2. How to explain describe the normal parameters of operation of any system in which they are operating including the manner in which it affects other systems
3. How, on the basis of the above, to describe when systems are out of normal operating parameters
4. How, on the basis of the above, to describe the consequences of abnormal operation of any system in which they are operating
5. How to explain the purpose of approved procedure and the need to follow it
6. How to identify the typical information requirements of typical ... (For further details of knowledge required contact the awarding body.)

**UNIT P12 SOLVE PROCESSING PROBLEMS****Element 12.2 : Select standard solutions to routine problems****Standards of Performance**

In achieving this element you will have ensured that:

- 1 You use all available information about the critical features of problems in order to identify solutions
- 2 Your elected solutions are the approved response to problems
- 3 Where the available information changes the nature and complexity of the problem, you take prompt steps to refer problems to instructing authorities for resolution
- 4 You identify solutions in timescales consistent with the priority, urgency and complexity of problems
- 5 You follow laid-down procedures for identifying solutions accurately
- 6 You recognise and act on any need for further clarification of the nature of problems

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. How to explain the essential features of any system in which they are operating
2. How to describe the normal parameters of operation of any system in which they are operating including the manner in which it affects other systems
3. How, on the basis of the above, to describe when systems are out of normal operating parameters
4. How, on the basis of the above, to identify the correct solution to a range of problems within the system in which they are operating
5. How to explain the purpose of approved procedure and the need to follow it
6. How to identify the typical information requirements of typical ... (For further details of knowledge required contact the awarding body.)

**UNIT P12 SOLVE PROCESSING PROBLEMS****Element 12.3 : Implement approved solutions to routine problems****Standards of Performance**

In achieving this element you will have ensured that:

- 1 You agree solutions with the instructing authorities
- 2 Your solutions achieve the approved success criteria
- 3 Solutions are safely implemented using authorised procedure
- 4 You implement solutions using the resources allocated and within the timescale set down by the instructing authority
- 5 All those who are affected by implementation activities are kept aware of the likely impact on their work and of progress
- 6 Where standard solutions fail, this is brought to the attention of the instructing authority for resolution
- 7 Where new factors change the nature and increase the complexity of problems, prompt and appropriate you take action to refer these problems to the relevant authority for resolution
- 8 All required documentation is accurately completed

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. How to explain the essential features of any system in which they are operating
2. How to describe the normal parameters of operation of any system in which they are operating including the manner in which it affects other systems
3. How, on the basis of the above, to describe when systems are out of normal operating parameters
4. How, on the basis of the above, to describe the consequences of their activities for other parts of the system and for safety, health and the environment
5. How to explain the purpose of approved procedure and the need to follow it
6. How to identify the typical information requirements of typical ... (For further details of knowledge required contact the awarding body.)

**UNIT P12 SOLVE PROCESSING PROBLEMS****Element 12.4 : Follow up the outcomes of routine problem solving activity****Standards of Performance**

In achieving this element you will have ensured that:

- 1 You give full and accurate and timely accounts to the responsible authorities describing: the factors prompting problem solving activity; the approved solutions identified and agreed; the outcomes of implementation activities
- 2 Where information generated by monitoring activity indicates an alternative diagnosis for the underlying causes of problems, you bring this promptly to the instructing authorities' attention for resolution
- 3 You conduct ongoing monitoring activities according to authorised procedure
- 4 You identify any possible improvement to the quality of standard solutions and bring it to the attention of the responsible authorities
- 5 You conduct monitoring activities using the resources allocated and within the timescale set down by the relevant authorities
- 6 All required documentation is accurately completed

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. How to explain the purpose of approved procedure and how to follow it
2. How to explain the purpose of monitoring activities and the benefits that effective monitoring can bring in particular to quality assurance and the continuous improvement of operational processes and their outcomes
3. How to describe the requirements of the range of procedures which apply to any system in which they are operating
4. How to identify the typical information requirements of instructing authorities and team members.

**UNIT P13      RUN AND CONTROL THE OPERATIONS OF PROCESSING PLANT****Structure****Element 13.1 : Start up the processing plant****Element 13.2 : Control and monitor processing plant operations****Element 13.3 : Shut down processing plant****Element 13.4 : Identify and respond to faults in processing operations****Unit Overview**

This unit is designed for you to demonstrate your competence to run and control the operations of minerals processing plant. Including those basic areas of plant maintenance for which you have responsibility. The unit covers starting up, controlling and monitoring, and shutting down processing plant; identifying and responding to faults in processing operations.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The principles and practice of using safeguards to protect self, others, equipment and the surrounding environment
2. Approved procedures and practices in the context of the operations, the work activity and the workplace environment (organisational; regulatory; emergency; operational)
3. Responsibilities under the Health and Safety Statutory Requirements

**UNIT P13      RUN AND CONTROL THE OPERATIONS OF PROCESSING PLANT****Element 13.1 : Start up the processing plant****Standards of Performance**

In achieving this element you will have ensured that:

1. Machinery and services for the processing operation are confirmed ready, safe and operable to meet the requirements of the specified process
2. Machine and operational safeguards are confirmed in place, complete and conform to approved procedures and practices
3. Start-up procedures for the processing plant are carried out in accordance with manufacturer's recommendations and operational requirements
4. Machine settings are checked and adjusted within agreed tolerances to meet the specified operational requirements
5. Problems and conditions outside the responsibility of the candidate are referred to an authorised person
6. Work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Reasons for start up procedures
2. Precautions to take prior to and during start up procedures
3. Methods of, and reasons for, isolation and immobilisation of equipment
4. Types of plant and equipment used in processing operations
5. Types of machine settings
6. Safeguards associated to the plant and process operations
7. Reasons for and interpretation of specifications
8. Meanings and use of symbols on consoles

**UNIT P13      RUN AND CONTROL THE OPERATIONS OF PROCESSING PLANT****Element 13.2 : Control and monitor processing plant operations****Standards of Performance**

In achieving this element you will have ensured that:

1. The processing plant is run and adjusted to the process requirements and to meet the specified quality and quantity requirements
2. Potential problems or difficulties with the process plant are identified and appropriate remedial action is taken
3. Processing settings are optimised to meet prescribed production rates
4. Plant and operational safeguards are maintained complete and conform to approved procedures and practices
5. Routine maintenance within your area of responsibility is carried out in compliance with approved procedures
6. Records of operating conditions, plant performance, processing efficiency and routine maintenance are maintained in accordance with operational and organisational requirements
7. Problems and conditions outside the responsibility of the candidate are referred to an authorised person
8. Work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Effect on plant of feed and flow rates
2. Reasons for stoppages and the remedial action to be taken
3. Potential problems which could arise during production runs
4. Identification and interpretation of visual displays for monitoring and controlling equipment, flow and production rates
5. Reasons and methods of sequencing processing operations
5. Safeguards associated with plant operations
6. Routine maintenance procedures within your area of responsibility
7. Types and methods of recording and reporting

**UNIT P13      RUN AND CONTROL THE OPERATIONS OF PROCESSING PLANT****Element 13.3 : Shut down processing plant****Standards of Performance**

In achieving this element you will have ensured that:

1. The processing plant is stopped in accordance with production schedules and operational requirements
2. The production process is shutdown in accordance with manufacturer's instructions and safe working practices
3. Plant and operational safeguards are maintained complete and conform to approved practices and procedures
4. Reasons and conditions for shutdown are reported to the appropriate person(s) in accordance with operational and organisational requirements
5. Work area is left clean, tidy and hazard free on completion of shutdown procedures
6. Problems and conditions outside the responsibility of the candidate are referred to an authorised person
7. Work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Sources of manufacturer's recommendations
2. Reasons for and methods of sequencing shut down procedures
3. Reasons for carrying out emergency shut down procedures
4. Possible faults during shut down and remedial action to take
5. Safeguards associated with plant and process operations
6. Types and methods of recording and reporting

**UNIT P13      RUN AND CONTROL THE OPERATIONS OF PROCESSING PLANT****Element 13.4 : Identify and respond to faults in processing operations****Standards of Performance**

In achieving this element you will have ensured that:

1. Processing faults are clearly identified and appropriate remedial action is taken in accordance with operational and organisational requirements
2. Processing faults which are not rectified within permitted schedules are reported promptly to the appropriate person
3. Where operational faults are potentially or actually dangerous, emergency shut-down procedures are implemented promptly to approved procedures and practices
4. Faults and variances are recorded in accordance with operational and organisational requirements
5. Problems and conditions outside the responsibility of the candidate are referred to an authorised person
6. Work is carried out to approved procedures and practices and in compliance with statutory requirements

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Types of, and reasons for, faults in processing activities
2. Methods of rectifying faults in processing activities
3. Emergency shut down procedures
4. Methods of recording and reporting faults and variances

**UNIT P2 : CONFORM TO GENERAL WORKPLACE SAFETY**  
[ConstructionSkills Unit No. VR 01 (01/03)]**Structure****Unit Overview**

This unit is about:

1. awareness of relevant current statutory requirements and official guidance
2. personal responsibilities relating to workplace safety, wearing appropriate personal protective equipment (PPE) and compliance with warning/safety signs
3. personal behaviour in the workplace
4. security in the workplace

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The **hazards** associated with the occupational area under different conditions.
2. The method of **reporting** hazards in the workplace.
3. What safety legislation **notices** are relevant to the occupational area.
4. Why and when **personal protective equipment (PPE)** should be used.
5. How **security** arrangements are implemented in the workplace.
6. What the organisational **emergency procedures** are.
7. What the types of **fire extinguishers** are and how they are used.

**Scope of Knowledge and Understanding**

The knowledge and understanding evidence should relate to the occupational area being assessed

- 1 **Emergency procedures:** In accordance with organisational requirements; accidents and emergencies associated with the type of work being undertaken and the work environment.
- 2 **Fire extinguishers:** Water, CO<sub>2</sub>, foam, powder, vaporising liquid and their uses.
- 3 **Hazards:** Associated with the occupational area; resources, workplace, environment, substances, equipment, obstructions, surfaces, storage, services and work activities under different conditions.
- 4 **Notices:** Statutory requirements and/or official guidance for the occupation and the work area.
- 5 **Personal protective equipment (PPE):** As required for the general work environment; e.g. helmet, ear defenders, overalls, safety footwear and high visibility vests/ jackets.
- 6 **Reporting:** Organisational recording procedures and statutory requirements.
- 7 **Security:** Organisational procedures relating to the general public, site personnel and resources

**UNIT P2 : CONFORM TO GENERAL WORKPLACE SAFETY**

**Element 2.1: Conform to general workplace safety**

**Standards of Performance**

In achieving this element you must be able to:

- 1 Identify hazards associated with the workplace and record and report in accordance with organisational procedure.
- 2 Comply with all workplace safety legislation requirements at all times.
- 3 Comply with and maintain all organisational security arrangements and approved procedures.
- 4 Comply with all emergency procedures in accordance with organisational policy.

**UNIT P6: CONFORM TO EFFICIENT WORK PRACTICES**  
[ConstructionSkills Unit VR 02 (01/03)]

## Structure

### Element 6.1 : Conform to Efficient Work Practices

#### Unit Overview

This unit is about:

- interpreting information
- planning, organising and adopting safe and healthy working practices
- planning and carrying out productive, efficient working practices
- working with others or as an individual

During this work the candidate must take account of the relevant operational requirements and safe working practices.

#### Unit-wide Underpinning Knowledge and Understanding

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. The methods of **communication** with other workplace personnel and/or client.
2. How organisational **procedures** are applied to maintain good work **relationships**.
3. How to maintain **documentation** in accordance with organisational procedures

#### Scope of Knowledge and Understanding

The knowledge and understanding evidence should relate to the occupational area being assessed

- 1 **Communication:** Written, oral and electronic.
- 2 **Documentation:** Job cards, worksheets, material/resources lists and time sheets.
- 3 **Procedures:** Use of resources for own and other's work requirements; Allocation of appropriate work to employees; Organisation of work sequence.
- 4 **Relationships:** Individuals, workplace groups (client and/or operative, operative and line management, own occupation and allied occupations).
- 5 **Work practices:** Own occupation and associated work occupations

**UNIT P6: CONFORM TO EFFICIENT WORK PRACTICES**

**Element 6.1 : Conform to Efficient Work Practices**

**Standards of Performance**

In achieving this element you must be able to:

- 1 Communicate with others to establish productive work relationships.
- 2 Follow organisational procedures to maintain good work relationships.
- 3 Maintain records in accordance with the organisational procedures.

**UNIT P8      CARRY OUT SIMPLE TESTING OPERATIONS**  
(LATA Unit 2.03)**Structure****Element 8.1 : Prepare for simple testing****Element 8.2 : Prepare test sample****Element 8.3 : Conduct simple tests****Element 8.4 : Record test results****Unit Overview**

This unit is for those who carry out simple testing activities using prescribed standard operating procedures to perform basic tests. Such tests require limited judgement from the operator and involve following standard operating procedures.

The equipment to be used, the conditions necessary for testing and the specific operations to be performed are defined in written instructions. Responsibility is limited to carrying out the defined procedure and recording the result. Any deviations from the standard operating procedures are referred to others for action.

This involves:

- checking equipment and conditions for testing
- identifying and preparing a simple test sample
- conducting tests safely
- recording test results.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. What are your personal responsibilities with regard to health, safety and the environment in the working area
2. What are the approved codes of practice and why it is important to follow them.
3. What are the organisation's policy and procedures on safe working practices
4. Why it is important to follow safe operating procedures when using equipment and / or materials.
5. How to prepare testing equipment
6. How to check the calibration of equipment
7. How to check that equipment is ready to use
8. How to identify and report defective equipment
9. When and how to take appropriate action in the event of deviations
10. What methods of sample preparation to use
11. Why testing conditions are important
12. How to control testing conditions
13. How to check integrity and identity of samples
14. What methods to use for the safe disposal of materials and waste
15. What documentation to use and why it is important to complete it accurately and legibly
16. What are the safe storage methods that should be used
17. How to calculate test results
18. How to present the test result information
19. Who are the relevant others and what information will they need

## **UNIT P8      CARRY OUT SIMPLE TESTING OPERATIONS**

### **Element 8.1 : Prepare for simple testing**

#### **Standards of Performance**

In achieving this element you will have ensured that:

1. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines
2. Check that the correct documentation is available before testing commences.
3. Ensure that testing equipment is in a serviceable condition and has been calibrated correctly.
4. Check that all the required resources are available and correctly prepared in accordance with standard operating procedures.
5. Identify any unserviceable equipment and report according to agreed procedure.
6. Confirm that the relevant controlled conditions for testing are confirmed.
7. Ensure that the correct sample has been selected..

#### **Underpinning Knowledge and Understanding**

See Unit Summary

## **UNIT P8      CARRY OUT SIMPLE TESTING OPERATIONS**

### **Element 8.2: Prepare test sample**

#### **Standards of Performance**

In achieving this element you will have ensured that you:

1. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidance
2. Ensure that you establish the identity of the sample and check it's integrity
3. Handle and use test samples safely in accordance with standard operating procedures
4. Ensure that the equipment used to prepare the sample is operated in accordance with standard operating procedures
5. Confirm the relevant controlled conditions for sample preparation are present
6. Prepare and test samples are prepared in accordance with standard operating procedures
7. Identify and store test samples correctly until required
8. Deal with any waste material in accordance with standard operating procedures
9. Complete any documentation accurately and legibly

#### **Underpinning Knowledge and Understanding**

See Unit Summary

## **UNIT P8      CARRY OUT SIMPLE TESTING OPERATIONS**

### **Element 8.3 : Conduct simple tests**

#### **Standards of Performance**

In achieving this element you will have ensured that you:

1. Work safely at all times, complying with health and safety, environmental and other regulations and guidelines
2. Ensure tests are carried out following standard operating procedures
3. Record any deviations from set procedure using appropriate documentation and take the appropriate action
4. Ensure you take in to account the effects of the test on the immediate environment
5. Clean and store appropriately any equipment and materials that are to be re-used
6. Handle and dispose of safely and correctly any other equipment and materials
7. Restore the working area to an appropriate condition

#### **Underpinning Knowledge and Understanding**

See Unit Summary

## **UNIT P8      CARRY OUT SIMPLE TESTING OPERATIONS**

### **Element 8.4 : Record test results**

#### **Standards of Performance**

In achieving this element you will have ensured that you:

1. Record relevant information and data according to standard operating procedures.
2. Perform simple calculations following set procedures.
3. Report any deviations from expected results promptly to the relevant people.
4. Ensure that the correct documentation is completed and stored in accordance with standard operating procedures.

#### **Underpinning Knowledge and Understanding**

See Unit Summary

**UNIT P14      MANAGE THE USE OF PHYSICAL RESOURCES**  
(1997 Management Standards Unit B2)**Structure****Element 14.1 : Plan the use of physical resources****Element 14.2 : Obtain physical resources****Element 14.3 : Ensure availability of supplies****Element 14.4 : Monitor the use of physical resources****Unit Overview**

This unit is about efficiently managing the physical resources for which you are responsible. It covers planning to use the resources you and your team need, obtaining those resources, ensuring the availability of suitable supplies, and monitoring the use of resources.

This unit is for you if you are a manager with responsibility for

1. allocating work to others
2. achieving specific results by using resources effectively
3. carrying out policy in your defined area of authority
4. controlling limited financial budgets, and
5. contributing to broader activities such as change programmes and recruitment.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Agreements and contracts
2. Analytical techniques
3. Communication
4. Information handling
5. Involvement and motivation
6. Monitoring and evaluation
7. Organisational context
8. Planning
9. Resource management.

You will find detailed knowledge requirements listed with each element.

**UNIT P14      MANAGE THE USE OF PHYSICAL RESOURCES****Element 14.1 : Plan the use of physical resources****Standards of Performance**

In achieving this element you will have ensured that:

1. you give opportunities to relevant people to provide information about the physical resources required
2. your plans take account of relevant past experience, trends and developments and factors likely to affect future resource use
3. your plans are consistent with your organisation's objectives, policies and legal requirements
4. you present your plans to relevant people in an appropriate and timely manner.

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Communication***

1. how to present and communicate plans on resource usage effectively.

***Involvement and motivation***

2. how to encourage and enable staff to communicate their needs for resources.

***Organisational context***

3. organisational objectives, policies and legal requirements relevant to resource usage, how to interpret these and identify the implications for resource planning.

***Planning***

4. the principles underpinning effective resource planning and your role and responsibility in relation to this.
5. how to develop short-, medium- and long-term plans\* for the use of resources
6. the types of trends and developments which might impact on your use of resources,
7. how to analyse these and draw out the implications for planning.

\* The time span for planning will be relative to the nature of operations on the site and also to the individual's level of responsibility for planning the use of resources

**UNIT P14      MANAGE THE USE OF PHYSICAL RESOURCES****Element 14.2 : Obtain physical resources****Standards of Performance**

In achieving this element you will have ensured that:

1. your requests for physical resources clearly show the costs involved and the anticipated benefits you expect from the use of the resources
2. you present your requests for physical resources to relevant people in time for the necessary resources to be obtained
3. you present requests for physical resources in ways that reflect the commitment of those who will be using the resources
4. the physical resources you obtain are sufficient to support all activities within your control
5. where you cannot obtain the physical resources you need in full, you agree appropriate amendments to your plans with relevant people.

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Analytical techniques***

1. how to carry out cost-benefit analyses for the use of resources.

***Communication***

2. how to develop and present an effective case for resources to relevant people.

***Involvement and motivation***

3. how to obtain and maximise commitment to resource planning.

***Organisational context***

4. procedures to follow in order to request resources.

***Planning***

5. how to adjust work plans in the event of required resources not being available.

***Resource management***

6. the physical resources which you need to carry out your activities effectively.

**UNIT P14      MANAGE THE USE OF PHYSICAL RESOURCES****Element 14.3 : Ensure availability of supplies****Standards of Performance**

In achieving this element you will have ensured that:

1. you identify the supplies you need accurately
2. the range of suppliers from which you choose is sufficiently wide to ensure adequate competition and continuity of supplies
3. you negotiate with suppliers in a manner that will maintain good relations with them
4. the agreements you reach with suppliers provide good value and comply with organisational and legal requirements
5. you monitor the quality and quantity of supplies at appropriate intervals
6. the supplies you obtain consistently meet your organisation's requirements for quality, quantity and delivery
7. you deal with any actual or potential problems with supplies promptly
8. your records of supplies are complete, accurate and available only to authorised people.

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Agreements and contracts-***

- 1 how to establish effective agreements with suppliers and the legal, ethical and organisational requirements which govern these.

***Analytical techniques-***

- 2 how to analyse work activities to identify required supplies
- 3 how to select from a range of suppliers to ensure value for money, consistency, quality and continuity of supply within organisational and legal requirements.

***Monitoring and evaluation***

- 4 how to monitor the provision of supplies to ensure ongoing quality, quantity, delivery and time requirements are being met.

***Organisational context***

- 5 the legal and organisational requirements which govern the selection of suppliers,
- 6 how to interpret these and identify the implications for your work.

***Resource management***

- 7 the importance of continuity of supplies to maintaining the quality of products and services and your role and responsibility in relation to this- the range of suppliers available for the physical resources you require
- 8 the range of problems which may occur with supplies and suppliers and effective corrective action to take in response to these-
- 9 the importance of accurate record keeping in managing supplies and suppliers, and systems to ensure that this happens properly.

**UNIT P14      MANAGE THE USE OF PHYSICAL RESOURCES****Element 14.4 : Monitor the use of physical resources****Standards of Performance**

In achieving this element you will have ensured that:

1. you give opportunities to team members to take individual responsibility for the efficient use of physical resources
2. your team's use of physical resources is efficient and takes into account the possible impact on the environment;
3. you monitor the quality of physical resources continuously
4. your methods of monitoring the use of physical resources are reliable and comply with organisational requirements
5. you monitor the actual use of physical resources against an agreed plan at appropriate intervals
6. you take prompt corrective action to deal with actual or potential significant deviations from your plan
7. your records relating to the use of physical resources are complete, accurate and available to authorised people only..

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Information handling***

1. principles of confidentiality regarding the use of resources:
2. which types of information may be made available to whom.

***Involvement and motivation***

3. how to encourage and empower team members to take responsibility for the efficient use of resources.

***Monitoring and evaluation***

4. the importance of effective monitoring of resource use to organisational efficiency and your role and responsibility in relation to this
5. how to monitor and control resource usage to maintain consistency and quality in the provision of products and services.

***Organisational context***

6. the organisational and legal requirements regarding the impact of resource usage on the environment and how to minimise adverse effects- your organisation's requirements for controlling resource usage-
7. your planned objectives and measures for resource usage.

***Resource management***

8. the range of obstacles to efficient use of resources and effective corrective action to take in response to these
9. the importance of effective record keeping in the use of resources and how to ensure that this happens.

**UNIT P15 LEAD THE WORK OF TEAMS & INDIVIDUALS TO ACHIEVE OBJECTIVES**  
(1997 Management Standards C12)**Structure****Element 15.1 Plan the work of teams and individuals****Element 15.2 Assess the work of teams and individuals****Element 15.3 Provide feedback to teams and individuals on their work****Unit Summary****What is the unit about?**

The unit is about providing direction to people in a clearly and formally defined area or part of an organisation and motivating and supporting them to achieve the vision and objectives for the area. The 'area of responsibility' may be, for example, a branch or department or functional area or an operating site within an organisation.

**Who is the unit for?**

This unit is for you if you are a manager or supervisor with

- a tightly defined area of responsibility
- some limited opportunity for taking decisions and managing budgets
- responsibility for achieving specific results by using resources effectively, *and*
- responsibility for allocating work to team members, colleagues or contractors.

**Unit-wide Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

1. Communication
2. Continuous improvement
3. Information handling
4. Involvement and motivation
5. Monitoring and evaluation
6. Organisational context
7. Planning
8. Working relationships.

You will find detailed knowledge requirements listed with each element.

**UNIT P15 LEAD THE WORK OF TEAMS & INDIVIDUALS TO ACHIEVE OBJECTIVES****Element 15.1 Plan the work of teams and individuals****Standards of Performance**

In achieving this element you will have ensured that:

1. you give opportunities to your team members to contribute to the planning and organisation of their work
2. your plans are consistent with your team's objectives
3. your plans cover all those personnel whose work you are responsible for
4. your plans and schedules are realistic and achievable within organisational constraints
5. your plans and the way you allocate work take full account of team members' abilities and development needs
6. you explain to your team members your plans and their work activities in sufficient detail and at a level and pace appropriate to them
7. you confirm your team members' understanding of your plans and their work activities at appropriate times
8. you update your plans at regular intervals and take account of individual, team and organisational changes

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Communication***

9. the importance of effective communication when explaining work plans and allocations
10. how to present work plans in a way that gains the support and commitment of those involved

***Continuous improvement***

11. the importance of regularly reviewing work

***Involvement and motivation***

12. the importance of providing your team members with the opportunity to contribute to the planning and organisation of their work

***Organisational context***

13. the types of organisational constraints which influence your planning

***Planning***

14. the importance of planning work activities to organisational effectiveness and your role and responsibilities in relation to this
15. how to develop realistic and achievable work plans for teams and individuals both in the short and medium term
16. the team's objectives and how your plans succeed in meeting these

***Working relationships***

17. the difference between someone who is within your line management control and someone for whom you have functional responsibility, and the implications this difference may have for planning work

**UNIT P15 LEAD THE WORK OF TEAMS & INDIVIDUALS TO ACHIEVE OBJECTIVES****Element 15.2 Assess the work of teams and individuals****Standards of Performance**

In achieving this element you will have ensured that:

1. you explain the purpose of assessment clearly to all involved
2. you give opportunities to team members to assess their own work
3. your assessment of work takes place at times most likely to maintain and improve effective performance
4. your assessments are based on sufficient, valid and reliable information
5. you make your assessments objectively against clear and agreed criteria

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Communication***

1. the importance of being clear yourself about the purpose of assessment and of communicating this effectively to those involved

***Continuous Improvement***

2. the importance of assessing the ongoing work of teams and individuals and your role and responsibilities in relation to this

***Information Handling***

3. how to gather and evaluate the information you need to assess the work of teams and individuals

***Involvement and Motivation***

4. the importance of providing opportunities to your team members to assess their own work and how you can enable and encourage this involvement

***Monitoring and Evaluation***

5. the range of purposes of work assessment, why work assessment may play a role in an organisation and how they apply to your own situation
6. how to assess the work of teams and individuals, and processes in the workplace which can support such assessment
7. the principles of fair and objective assessment of work and how to ensure this is achieved

**UNIT P15 LEAD THE WORK OF TEAMS & INDIVIDUALS TO ACHIEVE OBJECTIVES****Element 15.3 Provide feedback to teams and individuals on their work****Standards of Performance**

In achieving this element you will have ensured that:

1. You provide feedback to your team members in a situation and in a form and manner most likely to maintain and improve performance
2. The feedback you give is clear and is based on an objective assessment of your team members work
3. your feedback recognises team members' achievements and provides constructive suggestions and encouragement for improving their work
4. the way you give feedback shows respect for the individuals involved
5. you treat all feedback to individuals and teams confidentially
6. you give opportunities to team members to respond to feedback and recommend how they could improve their work

**Underpinning Knowledge and Understanding**

Within the limits of your responsibility you must be able to demonstrate that you know and understand:

***Communication***

1. the importance of good communication skills when providing feedback
2. how to provide both positive and negative feedback to team members on their performance
3. how to choose an appropriate time and a place to give feedback to teams and individuals
4. how to provide feedback in a way which encourages your team members to feel that you respect them

***Continuous Improvement***

5. the importance of providing clear and accurate feedback to your team members on their performance and your role and responsibilities in relation to this

***Information Handling***

6. the principles of confidentiality when providing feedback – which people should receive which pieces of information

***Involvement and Motivation***

7. how to motivate team members and gain their commitment by providing feedback
8. the importance of being encouraging when providing feedback to team members and showing respect for those involved
9. why it is important to provide constructive suggestions on how performance can be improved
10. the importance of giving those involved the opportunity to provide suggestions on how to improve their work