GQA PAA\VQSET Level 2 Diploma in Performing Process Operations within a Replicated Work Environment

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Centre Qualification Handbook

Competence-based Qualifications
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INTRODUCTION TO THE HANDBOOK

This qualification sits within the Regulated Qualifications Framework (RQF).

This Qualification Handbook has been developed to ensure that GQA Centres understand the requirements of the qualification. The Handbook contains the following information:

- Qualification Structure
- Assessment Requirements
- Assessment Methods
- Glossary
- Qualification Units

This Qualification Handbook has been developed to provide support in the implementation of the qualification as well as giving information to ensure that the assessment and quality assurance is consistent, robust and reliable within each centre and nationally. The handbook also contains details of the skills and/or knowledge the learner must obtain to achieve the units and qualification.

Qualification Structure

This section of the handbook summarises the content of the qualification and the skills and/or knowledge learners that achieve it can be expected to gain. It also outlines the units required to achieve the qualification and will give the learner an idea of how long the qualification will take to achieve through the Total Qualification Time (TQT) and how much contact time they can expect through the Guided Learning Hours (GLH). It also provides information about possible progression opportunities once the qualification has been achieved.

Assessment Requirements

The assessment requirements for the qualification will cover any specific information about how the qualification may be assessed, such as whether assessors require specific qualifications or occupational competence and whether simulation is permitted in the achievement process.

Assessment Methods

This section summarises the different assessment methods and types of evidence that support assessment; these may be used to demonstrate competence or the achievement of knowledge and understanding.

Qualification Units

The unit overview summarises the content of the unit and the skills and/or knowledge the learner will have gained on achievement of the unit. The units may also contain additional information in the assessment context which will describe the areas to be covered and any appropriate assessment guidance and evidence requirements which will outline additional assessment requirements and should be built into assessment plans and included on assessment records. The unit detail will also confirm whether simulation is permitted for that particular unit.

Qualification Assessment and Support Materials

Centres will be sent the following qualification assessment and support materials:

- Assessment Forms – it is not mandatory to use these forms. Centres may wish to use their own assessment documentation – these should be approved by the External Verifier prior to use.
- Learner Guide
- Qualification Handbook
- Registration Spreadsheet & Certification Claim Forms

LEVEL 2 DIPLOMA IN PERFORMING PROCESS OPERATIONS WITHIN A REPLICATED WORK ENVIRONMENT

Qualification Summary

This qualification will provide recognition of the skills and knowledge of individuals who perform process operations within a replicated work environment. It covers responding to incidents, hazardous conditions and emergencies; handover; working in a team and identifying and dealing with hazards. The Chemical Processing pathway also covers preparing for, controlling and completing batch processing operations.

Total Qualification Time (TQT) and Guided Learning Hours (GLH)

Guided Learning Hours (GLH)

Guided Learning Hours are the time the learner is under the immediate supervision or guidance of a lecturer, supervisor, tutor or other appropriate provider or education or training.

The GLH for this qualification is 251

Total Qualification Time (TQT)

Total Qualification Time is comprised of 2 elements:

1. GLH
   plus
2. an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by (but not under the immediate supervision of) a lecturer, supervisor, tutor or other appropriate provider or education or training

The TQT for this qualification is 400

Achieving the Qualification

16 Units must be achieved.

Mandatory Units:	All 8 Mandatory Units must be achieved.
Chemical Processing Pathway:	All 6 Pathway-Specific Mandatory Units must be achieved.
Optional Units:	Learners must achieve 2 Optional Units.

Knowledge and competence units must be taken together i.e. if unit PIO 3.11k is chosen, unit PPO-R 3.11c must also be completed; and vice-versa.

Mandatory Units

Unit No.	Unit Name	Credit Value
PIO 1.11k	How to Respond to Incidents, Hazardous Conditions and Emergencies within Processing Industries Environments	4
PPO-R 1.11c	Respond to Incidents, Hazardous Conditions and Emergencies within a Replicated Process/Production Environment	3
PIO 1.12k	How to Handover within Processing Industries Environments	2
PPO-R 1.12c	Handover within a Replicated Process/Production Environment	2
PIO 1.13k	How to Work Effectively in a Team within Processing Industries Environments	3

PPO-R 1.13c	Work Effectively in a Team within a Replicated Process/Production Environment	2
PIO 2.15k	How to Identify and Deal with Hazards in the Work Environment within Processing Industries Environments	2
PPO-R 2.15c	Identify and Deal with Hazards in the Work Environment within a Replicated Process/Production Environment	2

Chemical Processing Pathway - Mandatory Units

Unit No.	Unit Name	Credit Value
CPPO 2.5k	How to Prepare for Processing within Processing Industries Environments	2
PPO-R 2.5c	Prepare for Batch Processing within a Replicated Process/Production Environment	2
CPPO 2.6k	How to Control, Monitor and Adjust the Processing Operation within Processing Industries Environments	3
PPO-R 2.6c	Control, Monitor and Adjust the Batch Processing Operation within a Replicated Process/Production Environment	3
CPPO 2.7k	How to Complete Processing Operation within Processing Industries Environments	2
PPO-R 2.7c	Complete the Batch Processing Operation within a Replicated Process/Production Environment	2

Optional Units

Learners must achieve 2 Optional Units.

Unit No.	Unit Name	Credit Value
CPPO 2.8k	How to Sample and Test Materials within Processing Industries Environments	3
PPO-R 2.8c	Sample and Test Materials within a Replicated Process/Production Environment	3
CPPO 2.10k	How to Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments	3
PPO-R 2.10c	Clean and Prepare Complex Items of Plant and Equipment for Production within a Replicated Process/Production Environment	3
PIO 3.11k	How to Solve Process Problems within Processing Industries Environments	5
PPO-R 3.11c	Solve Process Problems within a Replicated Process/Production Environment	4
PIO 3.13k	How to Conduct an Assessment of Risks in the Workplace within Processing Industries Environments	4
PPO-R 3.13c	Conduct an Assessment of Risks in the Workplace within a Replicated Process/Production Environment	3

Progression

The Diploma in Performing Process Operations within a Replicated Work Environment is available at Level 2. The units within this qualification were developed from or related to the Processing Industries Operations National Occupational Standards and progression is available at Levels 2 to 3 in Processing Industries Operations.

Further information can be found on the GQA website www.GQAQUALIFICATIONS.COM or on the Register of Regulated Qualifications website http://register.ofqual.gov.uk

ASSESSMENT REQUIREMENTS

Assessors must ensure that, when assessing the skills, knowledge and/or understanding, the evidence produced by learners is:

- Valid – does evidence meet the requirements described in the unit?
- Authentic – has the learner produced the evidence?
- Current – has the evidence been produced recently and does it demonstrate current competence?
- Sufficient – is there enough evidence to demonstrate competence?

to enable reliable and consistent judgements to be made about the achievement of all the requirements of the unit(s) and qualification.

GQA Centres must ensure that people involved in the assessment process have the appropriate expertise and are adequately informed and supported to fulfil their responsibilities.

DEFINITION OF A REPLICATED WORK ENVIRONMENT

A replicated work environment is regarded as one that replicates a real working environment, and should replicate the key characteristics of the workplace in which the skill to be assessed is normally employed. For this qualification, a replicated process/production environment is required and it is expected that assessment will take place on equipment that closely replicates a real process plant; qualifications requiring a replicated process/production environment cannot be achieved in a classroom environment.

OCCUPATIONAL COMPETENCE OF ASSESSORS AND VERIFIERS

Assessors:

- must be competent in the units they are assessing. This is shown through the assessor having achieved the award they are assessing OR providing quality evidence to the external verifier that they are able to make valid judgements of the competence of learners. This could be done through a combination of a) personal interview, b) review of employment histories and/or c) examination of the assessor's judgement during assessments.
- must have a working knowledge of qualifications and a full understanding of that part of the qualification for which they have responsibility.
- should hold or be working towards suitable qualifications for assessment, i.e. the accredited Assessor Qualifications. Organisations should consult with GQA regarding approval for appropriate equivalents.

Internal Verifiers:

- must be either working in the appropriate sector itself OR they must be able to demonstrate they possess practical and up-to-date knowledge of current working practices appropriate to the sector in which they are carrying out verification practices; and
- must be appointed by an approved centre
- must have a working knowledge of the qualifications they are internally verifying
- should hold or be working towards suitable qualifications for verification, i.e. the accredited Internal Verification/Quality Assurance qualifications. Organisations should consult with GQA regarding approval for appropriate equivalents.

ASSESSMENT METHODS AND TYPES OF EVIDENCE

The following section gives information on the different assessment methods/types of evidence that support assessment. The following assessment methods/types of evidence may be used to demonstrate competence or that the learner has achieved the required level of knowledge and understanding.

Observation of Performance

Observation allows the assessor to see learners carrying out their work activities. It will take place primarily in the workplace but can also be undertaken in a training scheme. Natural discussion should take place where possible during observation, allowing the assessor to ask questions relating to what they are observing at the time. Assessors must capture their observations either by a written report and/or other methods (e.g. video, audio recording).

Questioning

This method of assessment can be used to ensure that the learner has knowledge and understanding to support their skills. Questions can be used to check knowledge - these questions can either be verbal during or at the end of an observation, or they can be set in a written format in formal or informal conditions. As some units may focus entirely on learners' knowledge, assessors may encourage a variety of evidence to meet the requirements of the unit – use of verbal and/or written questions, learner statements and professional discussion (see below). Verbal questioning or professional discussion should be captured, either by written notes or audio recording.

Products

Work product evidence may be generated as a result of work activities undertaken by learners, and could include reports, letters, or records of work carried out.

Witness Statement or Testimony

A Witness Statement or Testimony is confirmation by others that the learner carried out an activity or series of activities relevant to the requirements of the unit. It could be written by the learner and signed by the witness to confirm that it did take place, or the witness may write the statement. Alternatively, the assessor could speak to the witness and record the discussion. The statement can then be used as evidence within an assessment.

There may be occasions when an Expert Witness may be required to contribute to the assessment process. GQA's definition of an Expert Witness is 'an experienced employee who works in partnership with the assessor, by observing the learner carrying out their duties and recording their observations in line with the assessment procedures'. It should be noted that while the Expert Witness makes a valued contribution to the assessment process, it is the assessor who makes the assessment decision.

Simulation

Simulations are a source of performance evidence showing how an activity is carried out. Simulations require careful planning to ensure that they reflect as near as possible "real life" conditions and the requirements of the qualification(s). As a result of this the costs to set up a simulation may be considerable. Simulations are likely to be used in the following situations:

- they occur infrequently (e.g. dealing with emergencies)
- they involve unusual working conditions (e.g. working in isolation, outside the workplace)
- the work is hazardous
- it is not cost effective

Any use of simulation should be discussed and agreed with the GQA External Verifier and approved prior to implementation.

Recognition of Prior Learning (RPL)

This is the process whereby credit is given to experienced individuals for their previous achievements. It requires careful mapping of the individual's experience to the unit(s) to ensure that it meets the requirements. This exercise must be referred to the External Verifier to ensure that all the evidence presented is acceptable.

Professional Discussion

A Professional Discussion gives the learner the opportunity to tell their assessor what they are doing and why they are doing it in a particular way. The discussion should be supported by appropriate evidence – an observation report, work product or witness testimony. Professional Discussions should be planned to give the learner the chance to prepare, and should be recorded.

Learner Statements

A Learner Statement is an account of an activity that took place, described by the learner. A detailed statement could demonstrate skill, and also provides evidence of knowledge and understanding. Learner statements should be authenticated by an appropriate person.

Photographs and use of other media

Photographs and use of other media, e.g. video and audio, can provide detail of work activities carried out and questioning. Photographs are more effective when used with supporting statements. Video and audio evidence should be effectively referenced to allow specific activities or questioning to be found easily. It is important to note that if photographs and other media are to be used, the learner and assessor should ensure that permission is gained from all people who may be involved.

GLOSSARY

Term	Definition
Access Arrangements	Arrangements that are approved in advance of an examination or assessment to allow achievement to be demonstrated by learners with a disability, special learning needs (including where the learner's first language is not English, Welsh or Irish) or to avoid unlawful discrimination
Appeal	The process through which an awarding organisation may be challenged on the outcome of an enquiry about results or, where appropriate, other procedural decisions affecting a centre or an individual learner
Assessment	The process of making judgements about the extent to which a learner's work meets the requirements of a unit, or any additional assessment requirements of a qualification
Assessor	A person who assesses a learner's work
Award of Qualifications	A certificate (electronic or paper-based) issued to an individual that recognises their achievement
Award	A qualification with a TQT value between 10 and 129
Awarding Organisation	A body recognised by the qualifications regulators to award qualifications
Centre	An organisation accountable to an awarding organisation for assessment arrangements leading to the award of qualifications
Centre Recognition	A process through which a centre wishing to offer an award or awards is confirmed as being able to maintain the required quality and consistency of assessment, and comply with other requirements of the awarding organisation
Certificate (1) for a Unit or Qualification	A record of attainment of a qualification issued by an awarding organisation
Certificate (2)	A qualification with a TQT value between 130 and 369
Credit	An award that may be made to a learner in recognition of the achievement of a unit or qualification
Credit Value	The number of credits that may be awarded to a learner for the successful achievement of a unit or qualification
Diploma	A qualification with a TQT value of 370 or above
Guided Learning Hours	The number of hours of teacher-supervised or directed study time required to teach a qualification or unit of a qualification
Learning Time	The amount of time a learner at the level of the unit is expected to take, on average, to complete the unit to the standard required

Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner in demonstrating that achievement
Mandatory Units	Units that must be achieved for the qualification to be awarded
National Occupational Standards (NOS)	Describe what a person needs to do, know and understand in a job to carry out the role in a consistent and competent way
Optional Unit	A unit that a learner may choose to complete to achieve the required number of units for award of the qualification
Pathway	A route to the achievement of a qualification that requires particular units to be achieved and is identified by an endorsement to a qualification title
Qualification	An award made to a Learner for the achievement of the required units or other components for that qualification
Qualification Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner, represented by a qualification
Qualifications Regulators	Government-designated statutory organisations required to establish national standards for qualifications and secure consistent compliance with them
Recognition of Prior Learning (RPL)	A method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning
Sector Skills Council	A body responsible for formulating and reviewing occupational standards for a specific sector across the UK, and for supporting the development of units and qualifications based on these standards. Each SSC is an employer-led, independent organisation and is licensed by government
Standardisation Of Assessment	A process to ensure that assessment leading to the award of qualifications is applied consistently by individuals, centres and awarding organisations
Unique Learner Number (ULN)	The unique number that is used to identify an individual learner
Unit	A component of a qualification

LEVEL 2 DIPLOMA IN PERFORMING PROCESS OPERATIONS WITHIN A REPLICATED WORK ENVIRONMENT

CONTENT OF THE QUALIFICATION

MANDATORY UNITS

UNIT PIO 1.11K	**HOW TO RESPOND TO INCIDENTS, HAZARDOUS CONDITIONS AND EMERGENCIES WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**40**

Unit Overview

This unit addresses the knowledge required to respond to incidents, hazardous conditions and emergencies within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an operator with basic skills, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Incidents and Hazardous Conditions - These could be of a similar complexity to:

- Flood
- Toxic vapour and/or liquid release
- Uncontrolled release of hydrocarbons
- Injured personnel
- Major plant or service failure
- Explosions

Emergencies could include:

- Fire
- Release/spillage of materials
- Explosion
- Discovery of suspect package
- Discovery of injured person
- Accident involving person/equipment
- Major services failure

Raising the alarm - This could be done by:

- Mechanical/electrical means
- Notifying someone else
- Shouting

Other actions to be taken could include:

- Emergency shutdown of the plant
- Evacuation of the plant
- Notifying other people
- Assessing risk
- Emergency first aid
- Shutdown of the operation

Materials may include solids, liquids and gases.

Equipment/Plant may include any equipment/plant where there is some interaction between items and/or people.

Problems can relate to personnel and/or equipment.

Documentation includes that relating to emergencies, reports and any other relevant documentation.

Health, safety and environmental legislation includes all relevant legislation and company policy.

Risk assessment - To assess the likelihood of harming yourself and/or others by taking some form of action.

Communication includes spoken, written and/or electronic.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how to comply with organisational requirements	1.1. State the implications of statutory (e.g. HASAWA, COMAH and COSHH) and organisational requirements 1.2. Describe how to interpret operational requirements (e.g. policies, procedures, instructions, codes of practice, standards, schedules) 1.3. Outline how to work with and within the Permit to Work system
2. Know how to respond to incidents, hazardous conditions and emergencies	2.1. Identify the emergency procedures for plant and site 2.2. Outline the procedure for responding at an early stage of an incident 2.3. State how the alarm should be raised for each type of incident 2.4. Identify how to access, interpret and implement site emergency plans; environmental procedures; plant emergency procedures 2.5. Outline the appropriate first response to casualties 2.6. State how to communicate effectively
3. Know how to use equipment	3.1. Identify how to select, use and care for PPE 3.2. Outline the need for and use of emergency equipment
4. Know how to identify the effects of incidents, hazardous conditions and emergencies	4.1. State the types of incidents which should be reported 4.2. State the effect of the emergency on plant, equipment and personnel
5. Know how to act within the limits of own responsibility	5.1. State own responsibilities during emergencies 5.2. Identify potential incidents within own area of responsibility and the actions to be taken

UNIT PPO-R 1.11C	**RESPOND TO INCIDENTS, HAZARDOUS CONDITIONS AND EMERGENCIES WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to respond to incidents, hazardous conditions and emergencies within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate minimising the effect of three emergencies and give two reports of incidents (one written and one oral).
- Demonstrate raising the alarm on discovering the seven different types of emergency, covering all methods listed.

Assessment Guidance

- The use of simulation is acceptable in the assessment of this unit. All emergency assessments should be practical. Although not impossible, it is very unlikely that sufficient evidence or competence could be obtained from real emergencies. Simulations are therefore acceptable. Assessors should try to create a real emergency atmosphere so that the learner's urgency of response can be assessed.
- The assumption is made that the learner undertaking this unit will be an inexperienced operator with basic skills, developing and seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Incidents and Hazardous Conditions - These could include:

- Flood
- Toxic vapour and/or liquid release
- Injured personnel
- Major plant or service failure
- Explosions

Emergencies could include:

- Fire
- Release/spillage of materials
- Explosion
- Discovery of suspect package
- Discovery of injured person
- Accident involving person/equipment
- Major services failure

Raising the alarm - This could be done by:

- Mechanical/electrical means
- Notifying someone else
- Shouting

Other actions to be taken could include:

- Emergency shutdown of the plant
- Evacuation of the plant
- Notifying other people
- Assessing risk
- Emergency first aid
- Shutdown of the operation

Appropriate people could include:

- Supervisor
- Trainer

Materials may include solids, liquids and gases.

Equipment/Plant may include any equipment/plant where there is some interaction between items and/or people.

Problems can relate to personnel and/or equipment.

Documentation includes that relating to emergencies, reports and any other relevant documentation.

Health, safety and environment legislation includes all relevant legislation and company policy.

Risk assessment - To assess the likelihood of harming self and/or others by taking some form of action.

Communication includes spoken, written and/or electronic.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Act upon identification of an incident within a replicated process/production environment	1.1. Identify the nature, location and scope of an incident 1.2. Raise the appropriate alarm
2. Report incidents, hazardous conditions and emergencies within a replicated process/production environment	2.1. Report the incident to the appropriate people in accordance with plant reporting procedures within a replicated process/production environment 2.2. Provide accurate and unambiguous information to the appropriate people 2.3. Complete all relevant documentation
3. Contribute to the correction of incidents, hazardous conditions and emergencies within a replicated process/production environment	3.1. Inform appropriate people as actions are taken 3.2. Take the correct action, in accordance with procedures, to make the process safe, within the limits of own authority 3.3. Take the correct action, in accordance with procedures, to deal with the incident, within the limits of own authority 3.4. Minimise the incident, hazard or emergency 3.5. Minimise waste and loss 3.6. Act promptly and in association with others 3.7. Correctly modify actions in response to changing conditions
4. Follow organisational procedures when dealing with incidents, hazardous conditions and emergencies within a replicated process / production environment	4.1. Follow appropriate procedures after the situation has been assessed 4.2. Work safely in accordance with operational requirements

UNIT PIO 1.12K	**HOW TO HANDOVER WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**20**

Unit Overview

This unit addresses the knowledge required to carry out handover within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials may include solids, liquids and gases.

Operating instructions are the set of instructions which describe the work to be carried out, including details of the operating parameters.

Operating parameters are the conditions under which the processing should take place.

Handover is the handing over of operational responsibility.

Handover situation may include some or all of the following:
- At the end of a shift
- During a shift at an appropriate point
- Illness
- Accident
- Emergency situation
- Exchange of responsibility during an operating procedure
- Exchange of information during an operating procedure
- Transfer of materials during an operating procedure

Handover method may include some or all of the following methods:
- Written handover
- Verbal handover
- Electronic handover

Equipment/plant may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation.

Typical equipment could be of a similar complexity, but not limited to the following:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Film coaters
- Solution make-up vessels
- Filters and spray equipment

PPE Personal protective equipment to be specified, when necessary.

PTW may include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type is the batch and/or continuous processing. The following types may be included:

- Batch operations, where there are a number of batch operations running simultaneously, and also a multi-staged batch operation.
- Continuous operations, such as reaction, recovery, separation and purification processes, mixing, granulating, drying and compressing.

Problems can relate to either personnel, materials, equipment, operating instructions and/or specifications. Where a problem requires another person, the person would be expected to report the problem to the person who has the necessary authority to deal with it.

Corrective actions may include adjust, request assistance or shutdown.

Documentation includes that relating to handover, and any other relevant documentation.

Control of conditions may include, but are not limited to:

- Temperature
- Flow
- Humidity
- Pressure
- pH
- Density
- Level

Responsibility is to be in charge of a certain operation, and accept and confirm that responsibility.

Confidentiality is only providing information to those who are authorised to have it.

Communication includes spoken, written and/or electronic.

Health, safety and environmental legislation includes all relevant legislation and company policy.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to follow handover procedures	1.1. Describe the procedures associated with different handover methods, including written, verbal and electronic
	1.2. Explain the importance of knowing the correct handover time and method
	1.3. Explain why it may be important to observe security/confidentiality
	1.4. Identify the documentation which may need to be obtained before proceeding
2. Know how to pass on and receive the correct information at handover	2.1. Explain the consequences of not checking and confirming handover information
	2.2. State the importance of providing the incoming operator(s) with all relevant information
	2.3. Describe how to interpret handover information
3. Know how to communicate with relevant personnel during handover	3.1. Explain the importance of communication and keeping others informed during the operation
	3.2. Describe the different methods of communicating during the operation
4. Know how to work safely during handover	4.1. Indicate how to maintain the safe and effective operation of equipment during handover
	4.2. State the methods of accepting and confirming responsibility
5. Know how to maintain own and others safety whilst working	5.1. Identify what types of personal protective equipment to use and why
	5.2. Identify own personal responsibilities with regard to health, safety and environment
	5.3. Explain the importance of completing all documentation clearly and accurately, e.g. the permit to work or equivalent
	5.4. Describe the types of problems that can occur and how to recognise and respond to them
	5.5. Identify who to contact if there is an unsolvable problem and/or it is not their responsibility

UNIT PPO-R 1.12C HANDOVER WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT

LEVEL **2**

CREDIT VALUE **2**

GUIDED LEARNING HOURS **4**

Unit Overview

This unit addresses the skills required to carry out handover within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should demonstrate providing handover information covering at least 3 of the hand over situations identified in the assessment context.

The assessor should study the documentation carefully to ensure that it complies with procedures.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced employee, developing and seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials may include solids, liquids and gases.

Operating instructions are the set of instructions which describe the work to be carried out, including details of the operating parameters.

Operating parameters are the conditions under which the processing should take place.

Handover is the handing over of operational responsibility.

Handover situation may include some or all of the following:

- At the end of a shift/training module
- During a shift at an appropriate point
- Illness
- Accident
- Emergency situation
- Exchange of responsibility during an operating procedure
- Exchange of information during an operating procedure
- Transfer of materials during an operating procedure

Handover method may include some or all of the following methods:

- Written handover
- Verbal handover
- Electronic handover

Equipment/plant may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation.

Typical equipment could be of a similar complexity, but not limited to the following:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Solution make-up vessels

PPE Personal protective equipment to be specified, when necessary.

PTW may include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Problems can relate to either personnel, materials, equipment, operating instructions and/or specifications. Where a problem requires another person, the person would be expected to report the problem to the person who has the necessary authority to deal with it.

Corrective actions may include adjust, request assistance or shutdown.

Documentation includes that relating to handover, and any other relevant documentation.

Control of conditions may include, but are not limited to:

- Temperature
- Flow
- Humidity
- Pressure
- pH
- Density
- Level

Responsibility is to be in charge of a certain operation, and accept and confirm that responsibility.

Confidentiality is only providing information to those who are authorised to have it.

Communication includes spoken, written and/or electronic.

Health, safety and environmental legislation includes all relevant legislation and company policy.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Follow handover procedures within a replicated process / production environment	1.1. Interpret the required handover method/procedures 1.2. Ensure the necessary permit to work or equivalent is obtained 1.3. Ensure awareness of the current handover situation 1.4. Check that the handover time is correct, or is recorded if it is a non-scheduled handover 1.5. Ensure that the plant area is secure during the handover process 1.6. Check that they have any relevant documentation that they may need to proceed
2. Pass on and receive the correct information at handover	2.1. Obtain all the information needed for handover and confirm that it is correct 2.2. Ensure that all relevant handover information is given to the incoming operator/learner 2.3. Check that any information is recorded clearly and accurately at the time of the handover
3. Interpret the handover information and clarify if necessary	3.1. Interpret and understand the handover information 3.2. Clarify any concerns over the handover information with the relevant person
4. Work safely during handover within a replicated process / production environment	4.1. Maintain safe and effective operation of the equipment during handover 4.2. Accept and confirm responsibility, by appropriate method, after handover of information, responsibility and/or materials has taken place 4.3. Follow safe working procedures at all times
5. Follow operational and organisational procedures when carrying out handover within a replicated process/production environment	5.1. Wear appropriate Personal Protective Equipment 5.2. Communicate effectively with relevant others 5.3. Complete any relevant handover documentation clearly and accurately 5.4. Deal promptly with any problems that arise, reporting any that cannot be solved or are outside the limits of own responsibility

UNIT PIO 1.13K	**HOW TO WORK EFFECTIVELY IN A TEAM WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to work effectively in a team within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

This unit addresses the knowledge required to work with others. This involves:

- Those working in isolation, who need to communicate with others
- Those working in groups
- Accepting and clarifying responsibilities
- Providing and receiving support and feedback
- Working in ways which maintain their own and others' safety

The following terms have a specific meaning in this unit:

Responsibility - That which is given by the appropriate authority.

Authority - This gives the individual/s permission to perform the activities.

Personnel/work situation - This may include one, or a combination of:

- One to one
- Group/team work
- Where disagreement occurs
- One person to a group situation

Communication includes spoken, written and/or electronic.

Documentation includes all types of documentation that may be used in the organisation, in relation to the activity.

Corrective action - To be aware of potential hazards involved in the process, and take corrective action when necessary, including emergency shutdown.

Problems can relate to those encountered with either plant/equipment/materials/and/or personnel.

Feedback/Support - Assistance given or received within the organisation. All forms of feedback and support should be constructive.

Health, Safety and Environment - To be aware of all relevant legislation.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to ensure that personnel understand the work to be carried out	1.1. Identify how to check that all parties understand what is required of them (if required) 1.2. Explain why it is important that all personnel understand what is required of them 1.3. Identify methods of monitoring the activity 1.4. Explain the method of work activity planned
2. Know how to minimise disruptions	2.1. Explain the importance of keeping to agreed time schedules
3. Know how to monitor the effectiveness of communication methods at all times	3.1. Explain how to check whether others need to be informed 3.2. Identify what methods of communication to use and when to use them 3.3. Explain how to keep all relevant personnel informed of the progress of the activity
4. Know how to deal with problems	4.1. Describe what typical problems may arise and how to deal with them 4.2. Identify who to inform if they cannot solve the problem and/or it is not their responsibility 4.3. Explain why it is important to deal with problems effectively 4.4. Explain what actions could be taken when disagreement occurs
5. Know how to assist others	5.1. Describe how to identify when assistance may be required 5.2. Explain how to give assistance within their limit of authority
6. Know how to liaise with, and support, others	6.1. Explain why it is important to give constructive feedback and support in the operation 6.2. Explain how to give constructive feedback and support within the organisation
7. Know how to follow organisational, operational and regulatory procedures	7.1. Describe the meaning of authority and responsibility within the organisation, and how to check whether they have the required authority 7.2. Explain what their personal responsibilities are in the operation and with regard to health, safety and environment 7.3. Identify what documentation needs to be completed 7.4. Explain the importance of completing documentation/records accurately and clearly

UNIT PPO-R 1.13C	WORK EFFECTIVELY IN A TEAM WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to work effectively in a team within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should demonstrate competence in this unit over a period of time (approximately 2 months), working with others on the replicated plant.

Assessors may wish to consult with the learner's trainers or supervisors and fellow team members.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced employee, developing and seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

This unit addresses the competence required to work with others. This involves:

- Those working in isolation, who need to communicate with others
- Those working in groups
- Accepting and clarifying responsibilities
- Providing and receiving support and feedback
- Working in ways which maintain their own and others' safety

The following terms have a specific meaning in this unit:

Responsibility - That which is given by the appropriate authority.

Authority - This gives the individual/s, permission to perform the activities.

Work situation - This may include one, or a combination of:

- One to one
- Group/team work
- Where disagreement occurs
- One person to a group situation

Relevant/appropriate others may include:

- Trainers
- Supervisors

Communication includes spoken, written and/or electronic.

Documentation: includes all types of documentation that may be used in the organisation, in relation to the activity.

Corrective action - To be aware of potential hazards involved in the process, and take corrective action when necessary, including emergency shutdown.

Problems can relate to those encountered in a replicated process/production environment with either plant/equipment/materials/and/or working with others.

Feedback/Support - Assistance given or received within the organisation. All forms of feedback and support should be constructive.

Health, Safety and Environment - To be aware of all relevant legislation.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Ensure that learners and team members understand the work to be carried out	1.1. Check that all learners and team members, including self, know, understand and agree to responsibilities 1.2. Check that the work activity is understood
2. Minimise disruptions	2.1. Work within agreed time schedules 2.2. Ensure that the activity proceeds as planned
3. Use and monitor the effectiveness of communication methods at all times within a replicated process/production environment	3.1. Check the need to inform others who may be affected by an activity 3.2. Use appropriate methods of communication to keep learners and team members informed 3.3. Check that all learners and team members have received the necessary information 3.4. Keep relevant others informed of the progress of the activity
4. Deal with problems within a replicated process/production environment	4.1. Deal promptly with any problems that arise, that are within limits of own responsibility 4.2. Inform the appropriate person of any problems they cannot solve and/or are outside area of responsibility 4.3. Take appropriate action when disagreement occurs
5. Assist others	5.1. Identify when assistance is required 5.2. Give assistance when required if it is within the limits of own authority
6. Liaise with and support others	6.1. Give constructive support and feedback to appropriate others 6.2. Receive support and feedback from appropriate others
7. Follow organisational and operational procedures within a replicated process/production environment	7.1. Follow safe working procedures at all times 7.2. Complete any required documentation clearly and accurately 7.3. Check that the required authority to complete the required activity is obtained

UNIT PIO 2.15K	**HOW TO IDENTIFY AND DEAL WITH HAZARDS IN THE WORK ENVIRONMENT WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to identify and deal with hazards in the work environment within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an operator with basic skills, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The level and extent of responsibility is limited to working within an overall risk control strategy that has been developed by safety specialists. This will include detailed criteria for identifying hazards, together with clearly defined workplace procedures for the action that must be taken.

A hazard is defined by the Health and Safety Executive as 'something with the potential to cause harm.'

Typical hazards and risks could include those arising from:
- The use of materials and substances hazardous to the environment
- The disposal of waste, materials and substances hazardous to the environment
- The working environment, processes and/or use of equipment
- Emissions of gases, fumes and / or dust

Hazard checking methods to be used and specified within the risk control strategy within which the learner is operating. These may include visual checks.

The type of workplace and environment could include any controlled operation/live plant within processing industries environments.

Typical equipment could be of a similar complexity, but not limited to the following:
- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Film coaters
- Solution make-up vessels
- Filters and spray equipment

Type of action to be taken should be in the risk control strategy that applies to the learner's working environment. The types of action to be taken could include:
- Isolation of the hazard (without increasing the risk)
- Stopping activities
- Reporting the hazard to an appropriate person

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to spot hazards and use safety assessment methods	1.1. Outline the hazard spotting and safety assessment methods and techniques that can be used in own working environment
2. Know the types of hazards that could arise in own working environment	2.1. Explain the types of hazards that may arise within own working environment, from the processes, tools, equipment and materials that are used
3. Know the effects of hazards that could arise within own working environment	3.1. Describe the effects of hazards that could arise on persons, property and the environment
4. Know how to minimise the risk of hazards	4.1. Identify the appropriate actions needed to minimise the risk of the hazard 4.2. Explain how to take the actions needed to minimise the risk
5. Know how to report hazards and follow reporting procedures	5.1. Identify the documentation to use when reporting hazards 5.2. Describe the safety reporting procedures to use in own working environment 5.3. State the reporting lines and procedures within own working environment
6. Know how to follow organisational procedures	6.1. Identify relevant health and safety legislation 6.2. State own responsibilities with respect to health and safety legislation 6.3. Outline regulations, safe working practices, and workplace procedures that contain specific instructions to comply with in own working environment

UNIT PPO-R 2.15C	**IDENTIFY AND DEAL WITH HAZARDS IN THE WORK ENVIRONMENT WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to identify and deal with hazards in the work environment within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner must be able to demonstrate competence over a period of time that they identify 3 types of hazards and risks arising (see below), following their local procedures and criteria in a replicated work environment.

- The use of materials and substances hazardous to the environment
- The disposal of waste, materials and substances hazardous to the environment
- The working environment, processes and/ or use of equipment
- Emissions of gases, fumes and/or dust

The learner must also take 2 actions, as shown below, on the identification of the hazard(s):

- Isolation of the hazard, (without increasing the risk)
- Stopping activities
- Reporting the hazard to an appropriate person

Assessment Guidance

- The use of simulation will only be considered relevant and acceptable in the rare or dangerous occurrences in the assessment of this unit:
    - Rare occurrences at work
    - Emergency scenarios
    - Health, safety and environmental issues
- Replicated workplace performance evidence is mandatory for the rest of the unit.
- The assumption is made that the learner undertaking this unit will be an inexperienced operator with basic skills, developing and seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The level and extent of responsibility is limited to working within an overall risk control strategy that has been developed by safety specialists. This will include detailed criteria for identifying hazards, together with clearly defined workplace procedures for the action that must be taken within the replicated process/production environment.

A hazard is defined by the Health and Safety Executive as ‘something with the potential to cause harm’.

Typical hazards and risks could include those arising from:

- The use of materials and substances hazardous to the environment
- The disposal of waste, materials and substances hazardous to the environment
- The working environment, processes and/or use of equipment
- Emissions of gases, fumes and/or dust

Hazard checking methods to be used and specified within the risk control strategy within which the learner is operating. These may include visual checks.

The type of workplace and environment could include any controlled operation/plant within a replicated process/production environment.

Typical equipment could be of a similar complexity, but not limited to the following:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Solution make-up vessels

Type of action to be taken should be in the risk control strategy that applies to the learner's replicated process/production environment. The types of action to be taken could include:

- Isolation of the hazard (without increasing the risk)
- Stopping activities
- Reporting the hazard to an appropriate person

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Identify the hazards present in the workplace within a replicated process/production environment	1.1. Check for hazards in the replicated workplace in line with agreed and approved procedures 1.2. Recognise industrial processes, tools, equipment and materials that have the potential to cause harm within the replicated process/production environment
2. Report and minimise any hazards identified	2.1. Identify any potential hazards and take appropriate action to minimise the risk from them within the replicated process/production environment 2.2. Report any hazards identified and any actions they have taken
3. Follow organisational procedures within a replicated process / production environment	3.1. Work safely at all times, complying with health and safety and other relevant regulations and guidelines

CHEMICAL PROCESSING PATHWAY – MANDATORY UNITS

UNIT CPPO 2.5K	**HOW TO PREPARE FOR PROCESSING WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to prepare for processing within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Documentation - May include that relating to preparations, and any other relevant documentation.

Materials - May include solids, liquids and gases.

Operational Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters.

Operating Parameters - The conditions under which the processing should take place.

Optimisation Programme - The programme which aims to optimise performance.

Equipment/Plant - This may be expected to include equipment/plant where there is interaction between items and/or people. Also may include a number of parameters within the operator's control, and perhaps some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Film coaters
- Solution make-up vessels
- Filters and spray equipment

PPE - Personal protective equipment to be specified, when necessary.

PTW - May include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type - Batch and/or continuous processing. The following types may be included:

- Batch operations, where there may be a number of batch operations running simultaneously, and may be a multi-staged batch operation
- Continuous operations, such as reaction, recovery, separation and purification processes, mixing, granulating, drying and compressing

Problems - These can relate to either materials, equipment, personnel, operating instructions and/or specifications. Where a problem requires a maintenance engineer, the person would be expected to report the problem to a more senior person.

Corrective Actions - May include adjust, request assistance or shutdown.

Health, safety and environmental - To include all relevant legislation and company policy.

Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Density
- pH
- Level

Communication/Communicate - Methods to include spoken, written and electronic.

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know the factors that contribute to efficient processing operations	1.1. Explain the meaning of terms used in operating instructions 1.2. Describe how to interpret and check operating parameters 1.3. Describe the functions and uses of the different types of equipment used in the operation 1.4. Explain the importance of confirming status of plant/equipment 1.5. Explain the importance of communication and keeping others informed during the operation
2. Know the importance of the permit to work system, or equivalent	2.1. Define their responsibilities within the permit to work system, or equivalent 2.2. Assess the consequences of not using the permit to work system, or equivalent 2.3. Explain why it is important that the permit to work, or equivalent, is complete
3. Know how to identify and deal with problems	3.1. Describe the types of problems that can occur and how to recognise and deal with them 3.2. Explain who to contact if there is an unsolvable problem and/or it is not their responsibility
4. Know how to follow organisational procedures when preparing for processing	4.1. Explain what documentation needs to be used and how to complete it 4.2. Describe how to handle equipment safely in ways that protect themselves and others from risk 4.3. Identify their personal responsibilities with regard to health, safety and environment 4.4. Define what personal protective equipment to use and why 4.5. Explain when it may be important to observe security/confidentiality

UNIT PPO-R 2.5C	**PREPARE FOR BATCH PROCESSING WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**12**

Unit Overview

This unit addresses the skills required to prepare for processing in a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate preparing areas and equipment for at least one batch within the Assessment Context examples
- Demonstrate completing documentation for batch operations and related tasks

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced process operator seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Appropriate/relevant others – may be trainers, supervisors, other learners etc.

Documentation - May include that relating to preparations, and any other relevant documentation.

Materials - May include solids, liquids and gases.

Operational Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters.

Operating Parameters - The conditions under which the processing should take place.

Optimisation Programme - The programme which aims to optimise performance.

Equipment/Plant - This may be expected to include equipment/plant where there is interaction between items and/or people. Also may include a number of parameters within the operator's control, and perhaps some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Solution make-up vessels

PPE - Personal protective equipment to be specified, when necessary.

PTW - May include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type - Batch processing. The following types may be included:

- Batch operations, where there may be a number of batch operations running simultaneously, and may be a multi-staged batch operation

Problems - These can relate to either materials, equipment, personnel, operating instructions and/or specifications. Where a problem requires a maintenance engineer, the person would be expected to report the problem to a more senior person.

Corrective Actions - May include adjust, request assistance or shutdown.

Health, safety and environmental - To include all relevant legislation and company policy.

Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Density
- pH
- Level

Communication/Communicate - Methods to include spoken, written and electronic.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Prepare the replicated operating environment for processing	1.1. Check that they have the required operating instructions and that they are clear and complete 1.2. Ensure that the operating parameters are established for the replicated process/production environment 1.3. Check that the replicated area and equipment to be used is in a safe and functional condition 1.4. Confirm the status of the equipment before processing begins
2. Work safely and effectively, in accordance with organisational procedures within a replicated process/production environment	2.1. Begin replicated operation and operate equipment safely 2.2. Communicate, if required, with relevant others and/or learners 2.3. Wear appropriate Personal Protective Equipment 2.4. Work safely at all times with regard to materials, equipment and personal safety 2.5. Ensure that the surrounding area is secure and that all learners and appropriate others in the locality are aware of the preparation activities
3. Check and complete documentation	3.1. Check that the permit to work, or equivalent, is complete, if required 3.2. Check that they have all of the relevant documentation to proceed in the replicated process/production environment 3.3. Complete any required documentation accurately and clearly
4. Deal with any problems that arise within a replicated process / production environment	4.1. Deal promptly with any problems that arise, reporting any which they cannot solve and/or are not their responsibility to the appropriate person 4.2. Record the outcome/solution of the problem/s accurately

UNIT CPPO 2.6K	**HOW TO CONTROL, MONITOR AND ADJUST THE PROCESSING OPERATION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**24**

Unit Overview

This unit addresses the knowledge required to control, monitor and adjust the processing operation within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials - May include solids, liquids and gases.

Operational Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters. Also to include Standard Operating Procedures when appropriate.

Operating Parameters - The conditions under which the processing should take place.

Operating Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Density
- pH
- Level

Equipment/Plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Film coaters
- Solution make-up vessels
- Filters and spray equipment

PPE - Personal protective equipment to be specified, when necessary.

PTW - Permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type/operations - Batch and/or continuous processing. The following types may be included:

- Batch operations, where there are a number of batch operations running simultaneously, and also a multi-staged batch operation
- Continuous operations, such as reaction, recovery, separation and purification processes, mixing, granulating, drying and compressing

Problems - These can relate to either materials, equipment, personnel, operating instructions and/or specifications. Where a problem requires a maintenance engineer, the person would be expected to report the problem to a more senior person.

Sample - May be expected to include sampling methods, taking a quantity of the processing product and checking the quality. The method of obtaining, labelling, analysing, interpretation to depend on the processing method.

Product quality - The chemical composition to match the customer requirements and the product specification.

Deviations - Deviations of process variables from expected norms, non-conformance requiring adjustments and/or corrective action.

Corrective actions - May include adjust, request assistance, replace defective materials or shutdown.

Documentation - Including that relating to controlling processing, and any other relevant documentation.

Health, safety and environmental legislation - To be aware of relevant current legislation and company policy.

Communication/Communicate - Methods to include spoken, written and electronic.

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know how to prepare for the processing operation	1.1. Define the meaning of terms used in operating instructions
	1.2. Explain the importance of the permit to work (or equivalent)
	1.3. Explain how to interpret and check operating parameters
	1.4. Explain the importance of confirming materials and components are as specified
	1.5. Assess the importance of checking that controls are as specified
	1.6. Explain the importance of confirming materials to be used in the process
	1.7. Explain the importance of having specified operating parameters
	1.8. Compare the functions and uses of the different types of equipment used in the operation
2. Know how to control, monitor and adjust the processing operation	2.1. Describe how to begin processing according to standard operating procedures
	2.2. Describe methods of monitoring the process
	2.3. Explain what deviations may occur from the norm, and how to recognise them
	2.4. Identify what corrective action to take to restore to normal operating conditions
	2.5. Explain the importance of checking that the process is operating within normal parameters
	2.6. Explain how to control the process quality and the importance of minimising waste
	2.7. Explain the importance of communication, and of keeping others informed during the operation
3. Know how to follow the correct procedures for taking and analysing samples	3.1. Describe how to obtain representative samples and why it is important
	3.2. Describe how to label samples correctly and why it is important
	3.3. Define the correct method/procedure for processing samples
	3.4. Explain how to interpret sample results
4. Know how to comply with safe working practices	4.1. Demonstrate how to handle equipment safely in ways that protect themselves and others from risk
	4.2. Identify their personal responsibilities with regard to health, safety and environmental issues
	4.3. Explain what personal protective equipment to use and why

5. Know how to deal with problems if they arise	5.1. Explain the types of problems that may occur and how to recognise and deal with them 5.2. Identify who to contact if there is an unsolvable problem and/or it is not their responsibility
6. Know how to handle information regarding the processing operation	6.1. Identify what documentation needs to be used and how to complete it 6.2. Explain the importance of keeping accurate records for this activity

UNIT PPO-R 2.6C	**CONTROL, MONITOR AND ADJUST THE BATCH PROCESSING OPERATION WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**10**

Unit Overview

This unit addresses the skills required to control, monitor and adjust the batch processing operation within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate completing necessary setting up, checks and adjustments for at least one operation
- Demonstrate processing at least one batch
- Demonstrate maintaining process conditions by monitoring and adjusting for at least two related sections of plant
- Demonstrate restoring process conditions for at least two related sections of plant
- Demonstrate sampling of at least one process to confirm quality

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced process operator seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Appropriate/relevant others – may be trainers, supervisors, other learners etc.

Materials - May include solids, liquids and gases.

Operational Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters. Also to include Standard Operating Procedures when appropriate, within the replicated process/production environment.

Operating Parameters - The conditions under which the processing should take place within the replicated process/production environment.

Operating Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Density
- pH
- Level

Equipment/Plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Solution make-up vessels

PPE - Personal protective equipment to be specified, when necessary.

PTW - Permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type/operations - Batch. The following types may be included:

- Batch operations, where there are a number of batch operations running simultaneously, and also a multi-staged batch operation

Problems - These can relate to either materials, equipment, working with others, operating instructions and/or specifications. Where a problem requires a maintenance engineer, the person would be expected to report the problem to a more senior person/trainer/supervisor.

Sample - May be expected to include sampling methods, taking a quantity of the processing product and checking the quality. The method of obtaining, labelling, analysing, interpretation to depend on the processing method within the replicated process/production environment.

Product quality - The chemical composition to match the product specification and theoretical yield.

Deviations - Deviations of process variables from expected norms, non-conformance requiring adjustments and/or corrective action.

Corrective actions - May include adjust, request assistance, replace defective materials or shutdown.

Documentation - Including that relating to controlling processing, and any other relevant documentation.

Health, safety and environmental legislation - To be aware of relevant current legislation and company policy.

Communication/Communicate - Methods to include spoken, written and electronic.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Undertake preparations for the batch processing operation within a replicated process/production environment	1.1. Check that they have the required operating instructions for the replicated process / production environment and that they are clear and complete 1.2. Check that, if required, they have the necessary permit to work or equivalent 1.3. Ensure that the operating parameters are established for the replicated process / production environment 1.4. Check that the equipment to be used is in a safe and functional condition 1.5. Check that materials and components are as specified 1.6. Ensure that controls are set correctly as contained in the operating instructions for the replicated process / production environment 1.7. Check that they have the correct materials for the process operation 1.8. Check that they have all of the relevant documentation to proceed
2. Control, monitor and adjust the batch processing operation within a replicated process/production environment	2.1. Begin processing according to relevant operating instructions for the replicated process / production environment 2.2. Monitor processing by appropriate method 2.3. Recognise deviations and take corrective action to restore normal operating conditions 2.4. Check that the processing operation is operating according to instructions within the replicated process/production environment 2.5. Ensure that the product quality is controlled, and waste is minimised
3. Follow the correct procedures for taking and analysing samples	3.1. Obtain sample/s at the specified time from the specified place 3.2. Ensure that the sample is representative 3.3. Label sample/s correctly 3.4. Follow the correct procedure for processing sample/s 3.5. Interpret sample results, and take any necessary corrective action
4. Comply with organisational procedures within a replicated process/production environment	4.1. Wear appropriate Personal Protective Equipment 4.2. Deal promptly with any problems that arise, reporting any which they cannot solve and/or are not their responsibility to the appropriate person 4.3. Complete any required documentation accurately and clearly 4.4. Work safely at all times with regard to materials, equipment and personal safety

UNIT CPPO 2.7K	**HOW TO COMPLETE PROCESSING OPERATION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to complete the processing operation within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials - May include solids, liquids and gases.

Operating Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters.

Operating Parameters - The conditions under which the processing should take place.

Optimisation Programme - The programme which aims to optimise performance.

Equipment/Plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Film coaters
- Solution make-up vessels
- Filters and spray equipment

PPE - Personal protective equipment to be specified, when necessary.

PTW - May include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type - Batch and/or continuous processing. The following types may be included:

- Batch operations, where there may be a number of batch operations running simultaneously, or may be a multi-staged batch operation
- Continuous operations, such as reaction, recovery, separation and purification processes, mixing, granulating, drying and compressing

Problems - These may relate to either materials, equipment, personnel, operating instructions and/or specifications.

Corrective actions - May include adjust, request assistance and shutdown.

Documentation - May include that relating to preparations, and any other relevant documentation.

Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Level

Health, safety and environmental legislation - May include all relevant legislation and company policy.

Communication/Communicate - May include spoken, written and/or electronic.

SOP - Standard operating procedure. The method of performing a task that is recognised as best practice.

Services - May include, steam, water, air, electricity, fuel, gas and/or nitrogen.

Waste/residual materials - May include off specification product, waste materials and/or excess product.

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know how to prepare the plant for shutdown	1.1. Define the meaning of terms used in preparation/shutdown operating instructions
	1.2. Describe how to check that the equipment is ready for shutdown to commence
	1.3. Describe methods of shutdown for the operation
	1.4. Explain the importance of shutting down services not required by standard operating procedures
	1.5. Explain the importance of keeping relevant personnel informed
2. Know how to complete the processing operation	2.1. Describe why it is important to minimise any loss/damage during shutdown
	2.2. Explain the methods of dealing with waste and/or residual materials
	2.3. Explain how to handle equipment safely in ways that protect themselves and others from risk
	2.4. Describe methods of material reconciliation
3. Know how to work safely and effectively, in accordance with organisational procedures	3.1. Define when it may be important to observe security/confidentiality
	3.2. State their personal responsibilities with regard to health, safety and environment
	3.3. Identify what personal protective equipment to use and why
4. Know how to deal with any problems that arise	4.1. Compare the types of problems that can occur and how to recognise and deal with them
	4.2. Identify who to contact if there is an unsolvable problem and/or it is not their responsibility
5. Know how to check and complete documentation	5.1. Explain the importance of checking that they have the correct documentation
	5.2. Identify what documentation needs to be obtained
	5.3. Explain why it is important to complete documentation accurately and clearly

UNIT PPO-R 2.7C	**COMPLETE THE BATCH PROCESSING OPERATION WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	2
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to complete the batch processing operation within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Throughout this unit the learner will be carrying out operations and working with replicated plant and equipment which is at least as complex as that described in the assessment context.

Evidence Requirements

The learner should:

- Demonstrate ending at least one batch operation
- Demonstrate reconciling materials and completing documentation following one batch process

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced process operator seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Appropriate/relevant others – may be trainers, supervisors, other learners etc.

Materials - May include solids, liquids and gases.

Operating Instructions - The set of instructions which describe the work to be carried out, including details of the operating parameters within the replicated process/production environment.

Operating Parameters - The conditions under which the processing should take place within the replicated process/production environment.

Optimisation Programme - The programme which aims to optimise performance.

Equipment/Plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include a number of parameters within the operator's control, and some control instrumentation. Typical equipment may include:

- Chemical reactors
- Addition tanks
- Phase separators
- Receiving vessels
- Pipework and pumps
- Solution make-up vessels

PPE - Personal protective equipment to be specified, when necessary.

PTW - May include permit to work. Authority to start, and/or continue with the operation or the equivalent.

Process type – Batch - The following types may be included:

- Batch operations, where there may be a number of batch operations running simultaneously, or may be a multi-staged batch operation

Problems - These may relate to either materials, equipment, working with others, operating instructions and/or specifications.

Corrective actions - May include adjust, request assistance and shutdown.

Documentation - May include that relating to preparations, and any other relevant documentation.

Conditions - Control of conditions may include:

- Temperature
- Flow
- Humidity
- Pressure
- Level

Health, safety and environmental legislation - May include all relevant legislation and company policy.

Communication/Communicate - May include spoken, written and/or electronic.

SOP - Standard operating procedure. The method of performing a task that is recognised as best practice within the replicated process/production environment.

Services - May include, steam, water, air, electricity, fuel, gas and/or nitrogen.

Waste/residual materials - May include off specification product, waste materials and/or excess product.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Prepare replicated plant for shutdown	1.1. Check that they have the required preparation/shutdown operating instructions and that they are clear and complete
	1.2. Check that the plant/equipment is in an appropriate condition for shutdown to commence in the replicated process/production environment
	1.3. Communicate with all relevant others that shutdown is imminent
2. Complete a batch processing operation within a replicated process/production environment	2.1. Ensure that all services not required are shutdown according to operating instructions within the replicated process/production environment
	2.2. Confirm that services are isolated
	2.3. Inform all relevant others when shutdown is completed
	2.4. Minimise any loss or damage through the operation
	2.5. Control residual and/or waste materials
3. Work safely and effectively, in accordance with organisational procedures within a replicated process/production environment	3.1. Wear appropriate Personal Protective Equipment
	3.2. Work safely at all times with regard to materials, equipment and personal safety
	3.3. Ensure that the plant area is secure and clean and tidy
4. Deal with any problems that arise within a replicated process / production environment	4.1. Deal promptly with any problems in the procedure that are their responsibility
	4.2. Record the outcome/solution of the problem accurately
	4.3. Inform the appropriate person of any problems they cannot solve and/or are not their responsibility
5. Check and complete documentation	5.1. Check that they have the correct documentation for the operation
	5.2. Complete any required documentation accurately and clearly
	5.3. Record all results accurately

OPTIONAL UNITS

UNIT CPPO 2.8K	**HOW TO SAMPLE AND TEST MATERIALS WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to sample and test materials within processing industries environments. This includes knowing how to:

- Prepare and obtain a sample
- Test the sample
- Maintain product integrity at all times
- Maintain the learner's own and others' safety while working

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials/sample - May include solids, liquids and gases.

Specification - The set of instructions which describe the work to be carried out. Including customer requirements, both qualitative and quantitative, and the time within which it must be completed.

Sample request - May include the following:
- Quality assurance testing during production
- Latest moisture content testing
- On-site sample

Sampling plan - Contains all relevant information, including:
- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request - May include the following:
- Conducting density/moisture tests
- Establishing liquid and plastic limits
- Performing viscosity tests
- Cell identification/in-numeration

Testing plan - Contains all relevant information to be used. May include:
- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Sampling equipment - Sampling equipment may include:
- Gas bombs
- Automated
- Standard bottles (glass and plastic)
- Manual sampling points

Equipment - PPE to be specified, when necessary.

Problems - These can relate to either materials, equipment and/or materials and/or delivery specifications. The person carrying out this work would be expected to resolve any equipment problem for which maintenance engineers are not required. Where a problem does require a maintenance engineer, the person would be expected to report the problem to a more senior person. Other problems include contamination, disruption and disturbance.

Documentation - Includes specifications, reports, schedules and any other relevant documentation.

Conditions - Control of conditions may include:
- Temperature
- Pressure
- Flow
- Level
- Humidity
- Density
- pH

Risk assessment - To include hazardous materials and contamination.

Health, safety and environmental legislation - To include all relevant legislation and company policy.

SOP - Standard operating procedure. The method of performing a task that is recognised as best practice.

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know how to prepare for sampling and testing	1.1. Outline the meaning of terms used in sampling plans 1.2. Select the appropriate method for sampling 1.3. Describe the handling characteristics of materials to be sampled 1.4. Explain the types of labelling used 1.5. Define the meaning of terms used in testing plans 1.6. Explain the different methods of testing that could be used 1.7. Outline the correct standard operating procedure for testing
2. Know how to use equipment associated with sampling and testing	2.1. Describe the functions and uses of the different types of equipment used in sampling methods 2.2. Clarify how to handle equipment safely in ways that protect themselves and others from risk 2.3. Explain the different types of equipment used in testing
3. Know how to undertake sampling and testing in a processing environment	3.1. Explain why it is important to check that the correct sample has been selected 3.2. Indicate methods of storing and labelling test samples 3.3. Explain how to record the results
4. Know how to deal with problems as they arise	4.1. Explain what corrective action to take on discovering defective conditions, materials and/or equipment 4.2. Describe the types of problems that can occur and how to recognise and deal with them 4.3. Estimate what the consequences are of incorrect/adverse conditions 4.4. List what the consequences are of abnormal results, and display an understanding of who to inform
5. Know how to clean and clear the area following sampling and testing	5.1. Describe the methods of clearing residual materials and/or waste 5.2. Define why, when and how the equipment needs to be cleaned and stored
6. Know how to comply with organisational procedures	6.1. Outline when and why to use personal protective equipment 6.2. Describe their personal responsibilities with regard to health, safety and environment 6.3. Describe what documentation needs to be used and what information needs to be recorded

UNIT PPO-R 2.8C	**SAMPLE AND TEST MATERIALS WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**10**

Unit Overview

This unit addresses the skills required to sample and test materials within a replicated process/production environment.

This includes:

- Preparing and obtaining a sample
- Testing the sample
- Maintaining product integrity at all times
- Maintaining the learners' own and others' safety while working

Assessment Guidance and Evidence Requirements

Evidence Requirements

To perform competently the learner will need to demonstrate that they can operate in a range of conditions. As the learner carries out their work activity they will be able to prove their competence in this area. The learner must:

- Be observed gathering and preparing appropriate and serviceable equipment and materials
- Be observed preparing samples on three different occasions with supporting documentation evidence for three further samples (Documentary evidence could include standard operating procedures supported by correctly labelled samples and the test results produced from using those samples such as performance reports, pass/fail sheets, test records and quality assurance results)
- Be observed conducting and recording simple tests on three different occasions with supporting documentary evidence from three further tests (Documentary evidence could include finished test sheets, standard operating procedures supported by performance reports, pass/fail sheets and test records)
- Show that they can take samples of products and components and identify them correctly
- Show that they can label them correctly and explain the importance of doing so
- Prepare usable test samples and specimens in the specified condition with written records of sample production and disposal
- Show that they can complete the necessary documentation

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced process operator seeking recognition of their competence following completion of a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Appropriate/relevant others – may be trainers, supervisors, other learners etc.

Materials/sample - May include solids, liquids and gases.

Specification - The set of instructions which describe the work to be carried out. Including customer requirements, both qualitative and quantitative, and the time within which it must be completed.

Sample request - May include the following:
- Quality assurance testing during production
- Quality Assurance of raw materials
- On-site sample

Sampling plan - Contains all relevant information, including:
- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request - May include the following:
- Conducting density tests
- Conducting conductivity tests
- Performing acid/base titrations

Testing plan - Contains all relevant information to be used. May include:
- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Appropriate testing procedure in accordance with testing plan, 3 from the following to be chosen:
- SOP1 – Density
- SOP2 – pH
- SOP3 – Conductivity
- SOP4/5/6 - Titrations

Sampling equipment - Sampling equipment may include:
- Automated
- Standard bottles (glass and plastic)
- Manual sampling points

Equipment - PPE to be specified, when necessary.

Problems - These can relate to either materials, equipment and/or materials and/or delivery specifications. The person carrying out this work would be expected to resolve any equipment problem for which maintenance engineers are not required. Where a problem does require a maintenance engineer, the person would be expected to report the problem to a trainer/supervisor. Other problems include contamination, disruption and disturbance.

Documentation - Includes specifications, reports, schedules and any other relevant documentation.

Conditions - Control of conditions may include:
- Temperature
- Pressure
- Flow
- Level
- Humidity
- Density
- pH

Risk assessment - To include hazardous materials and contamination.

Health, safety and environmental legislation - To include all relevant legislation and company policy.

SOP - Standard operating procedure. The method of performing a task that is recognised as best practice.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Prepare to obtain a sample	1.1. Check that they have the required sampling plan and that it is clear and complete 1.2. Ensure that equipment to be used is as specified, and in a safe and functional condition 1.3. Ensure that all required resources are available 1.4. Ensure that conditions are in accordance with sample plan, and are recorded 1.5. Ensure that any risk assessment is undertaken if necessary
2. Obtain a sample within a replicated process/production environment	2.1. Ensure that sample is taken in accordance with standard operating procedures within the replicated process/production environment 2.2. Protect sample from all forms of contamination 2.3. Deal promptly with any problems that arise when obtaining a sample, and record appropriately 2.4. Identify and label sample according to sampling plan 2.5. Record information as specified in the sampling plan
3. Prepare to test a sample within a replicated process / production environment	3.1. Check that they have the required testing plan and that it is clear and complete 3.2. Store and label test sample 3.3. Check that the correct sample has been selected
4. Test a sample within a replicated process/production environment	4.1. Use the appropriate testing procedure in accordance with testing plan 4.2. Ensure that controlled conditions are as specified in the testing plan 4.3. Record all results in accordance with testing plan 4.4. Deal promptly with any problems, deviations, or abnormal occurrences when testing and record and inform the appropriate person 4.5. Complete all relevant documentation
5. Clean and clear the area following sampling and testing	5.1. Clear any residual materials and/or waste from the testing area in accordance with the procedures for the replicated process/production environment 5.2. Ensure that any equipment to be re-used is cleaned and stored appropriately
6. Comply with safe working practices within a replicated process/production environment	6.1. Wear appropriate Personal Protective Equipment in the correct manner 6.2. Work safely at all times with regard to materials, equipment and personal safety

UNIT CPPO 2.10K	**HOW TO CLEAN AND PREPARE COMPLEX ITEMS OF PLANT AND EQUIPMENT FOR PRODUCTION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**15**

Unit Overview

This unit addresses the knowledge required to clean and prepare complex items of plant and equipment for production within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Materials - May include solids, liquids and gases.

Operating Instructions/specification - The set of instructions which describe the work to be carried out, including details of the parameters for doing so.

Dismantling operations - May include, within limits of the learner's authority:
- Disconnecting
- Isolating
- Disassembling

Cleaning operations - May include the removal of:
- Solids
- Liquids
- Gases

by appropriate procedures.

Equipment/plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include single items of equipment comprising a few parts.

Types of equipment to be cleaned may include:
- Heat exchangers
- Dryers
- Filtration systems
- Tablet presses
- Sterile filtration units

PPE - Personal protective equipment to be specified, when necessary.

Problems - These may relate to materials, equipment, personnel and/or specifications.

Corrective actions - May include adjust, request assistance or shutdown.

Documentation – May include any relevant documentation.

Communication/Communicate - May include either spoken, written and/or electronic.

Liaison - To keep personnel informed throughout the operation.

Maintenance - Work which may be carried out to enable the process to run as smoothly as possible.

Health, safety and environmental legislation - May include any relevant legislation and company policy.

Authority/Authorisation - The permission that is needed to complete the task.

SOP - Standard Operating Procedure. The method of completing a task according to stated guidelines in the organisation.

Current Status - Confirmation of plant and equipment.

Relevant personnel - May include:

- Process
- Utilities
- Materials handling
- Laboratory
- Any other relevant personnel

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Know how to ensure readiness to proceed	1.1. Explain the importance of identifying the correct plant/equipment 1.2. Describe the methods of isolating plant/equipment
2. Know how to dismantle equipment	2.1. Describe how to dismantle plant and/or equipment correctly 2.2. Describe how to handle equipment safely in ways that protect themselves and others from risk
3. Know how to clean equipment	3.1. Explain the meaning of terms used in specifications concerned with cleaning 3.2. Describe the methods of cleaning plant/equipment
4. Know how to reinstate equipment	4.1. Describe how to reassemble plant and/or equipment correctly
5. Know how to check the status of the plant and/or equipment	5.1. Explain why it is important to check that plant and equipment is clean and operational 5.2. Explain the importance of checking the status of the plant and equipment 5.3. Explain why it is important to identify any 'areas of concern' 5.4. Explain why it is important to record all information accurately 5.5. Explain why it is important to confirm and record the status of the plant and equipment
6. Know how to liaise with maintenance personnel	6.1. Describe how to contact the appropriate maintenance personnel 6.2. Explain the importance of communication through the procedure 6.3. Explain why it is important to explain about the current status of the plant/equipment 6.4. Explain why it is important to give warnings about specific hazards and/or safety issues 6.5. Explain why it is important to complete documentation accurately 6.6. Describe methods of documentation that are used
7. Know how to deal with problems and follow safe working practices	7.1. Describe the types of problems that can occur and how to recognise and deal with them 7.2. Identify who to contact if there is an unsolvable problem and/or it is outside normal limits of responsibility 7.3. Describe o What personal protective equipment to use o When and why it should be used 7.4. Describe personal responsibilities with regard to health, safety and environment

UNIT PPO-R 2.10C	**CLEAN AND PREPARE COMPLEX ITEMS OF PLANT AND EQUIPMENT FOR PRODUCTION WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**2**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**20**

Unit Overview

This unit addresses the skills required to clean and prepare complex items of plant and equipment for production within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate cleaning at least two dissimilar pieces of equipment and preparing them for production or maintenance, using one method of removal
- Demonstrate liaising with maintenance personnel/trainer/supervisor on at least one occasion, either handing plant over or receiving plant back after maintenance
- Demonstrate confirming the status of two dissimilar items of plant/equipment after cleaning or maintenance

Items of plant/equipment to be cleaned and prepared for production should be at least as complex as that described in the assessment context.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced process operator seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Appropriate/relevant others – may be trainers, supervisors, other learners etc.

Materials - May include solids, liquids and gases.

Operating Instructions/specification - The set of instructions which describe the work to be carried out, including details of the parameters for doing so.

Dismantling operations - May include, within limits of the learner's authority:

- Disconnecting
- Isolating
- Disassembling

Cleaning operations - May include the removal of:

- Solids
- Liquids
- Gases

by appropriate procedures.

Equipment/plant - This may include equipment/plant where there is some interaction between items and/or people. Also may include single items of equipment comprising a few parts.

Types of equipment to be cleaned may include:

- Heat exchangers
- Reactors
- Storage tanks

PPE - Personal protective equipment to be specified, when necessary.

Problems - These may relate to materials, equipment, working with others and/or specifications.

Corrective actions - May include adjust, request assistance or shutdown.

Documentation – May include any relevant documentation.

Communication/Communicate - May include either, spoken, written and/or electronic.

Liaison - To keep relevant others informed throughout the operation.

Maintenance - Work which may be carried out to enable the process to run as smoothly as possible.

Health, safety and environmental legislation - May include any relevant legislation and company policy.

Authority/Authorisation - The permission that is needed to complete the task.

SOP - Standard Operating Procedure. The method of completing a task according to stated guidelines in the organisation.

Current Status - Confirmation of plant and equipment.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Prepare plant and/or equipment for cleaning within a replicated process/production environment	1.1. Check that they have the required authorisation to proceed 1.2. Check that they have the specification detailing the work to be carried out 1.3. Identify correct plant and/or equipment within the replicated process/production environment to be isolated 1.4. Isolate plant and/or equipment according to Standard Operating Procedures for the replicated process/production environment
2. Dismantle, clean and reinstate equipment within a replicated process/production environment	2.1. Dismantle plant/equipment correctly within a replicated process/production environment 2.2. Clear and clean all residual materials and/or waste from the area to the required standard 2.3. Re-assemble plant and/or equipment ready for the next operation
3. Check the status of the plant and/or equipment within a replicated process/production environment	3.1. Ensure that all plant/equipment is confirmed as being clean and operational 3.2. Check the status of all plant/equipment, identifying any areas of concern 3.3. Ensure that the condition of all plant/equipment is recorded accurately 3.4. Confirm that the area is in a suitable condition for the next activity
4. Liaise with maintenance personnel within a replicated process / production environment	4.1. Ensure that relevant others are clear about the nature of the plant/equipment to be maintained 4.2. Communicate effectively with relevant others 4.3. Explain to relevant others about any problems and current status of the plant/equipment within the replicated process/production environment 4.4. Give warnings as appropriate about specific hazards and/or safety requirements 4.5. Ensure that when the plant/equipment is received from maintenance they are clear about the work undertaken 4.6. Record information accurately on correct documentation
5. Deal with problems and follow safe working practices within a replicated process/production environment	5.1. Deal promptly with any problems that arise, reporting any which they cannot solve to the appropriate person 5.2. Wear appropriate Personal Protective Equipment 5.3. Work safely at all times with regard to materials, equipment and personal safety

UNIT PIO 3.11K	**HOW TO SOLVE PROCESS PROBLEMS WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**5**
GUIDED LEARNING HOURS	**42**

Unit Overview

This unit addresses the knowledge required to solve process problems within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an experienced operator/technician, developing into a technical or specialist role.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Problems may arise from different causes. Problems can be dealt with directly, may require the assistance of others, or must be notified to a superior or specialist colleague. Problems may include significant or minor deviations from process quality specifications, and/or significant or minor departure of process parameters from expected norms.

Possible faults and causes could include:
- Faults or malfunctioning of the process equipment or system
- Faults or malfunctioning of control system for the process
- Faults in the materials supplied to the process

Solution/s that could be carried out could involve making system adjustments and changes themselves, seeking the assistance of others with particular expertise, reporting the problem to a superior.

Materials may include solids, liquids and gases.

Operating instructions and/or specification are the set of instructions which detail the process and the quality/quantity/time outcomes for the operation, including normal operating parameters.

Equipment/plant might include equipment/plant where there is some interaction between items and/or people.

Problems can relate to materials, equipment or specifications, or to any combination of these. Typical production problems include those with a similar complexity, but not limited to:
- Product contamination
- Loss of yield
- Equipment damage
- Non-conformance
- Non-achievement of specified quantity/time and/or quality requirements
- Health/safety/environmental problems

Problem solving, for this unit, does not include emergency shutdown.

Investigative methods used to find the solution may include, but are not limited to:

- Inspecting
- Interviewing
- Testing of materials
- Testing of equipment
- Trying out solutions

Authority is that which is given to the person responsible for the operation.

Documentation includes any relevant reports/records/recommendations and any other documentation.

Communication methods include individually or in groups, either:

- Written
- Spoken
- Electronic

Recommendations may include some or all of the following:

- Improving quality
- Improving quantity
- Reducing costs
- Safety aspects
- Environmental aspects
- Improving time scales

Health, safety and environmental legislation includes all relevant legislation.

PPE (Personal Protective Equipment) to be specified, when necessary.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the functions and materials within different processes and how they interact	1.1. Describe the main functions of process equipment and systems 1.2. Explain how the various parts of a system interact and what types of services are used by process equipment and systems 1.3. Identify what materials are used in different processes, what happens to them as they are processed and why they have to be prepared
2. Know how to take readings and monitor procedures in order to identify any process problems	2.1. Identify what the readings should be, what readings to expect and why and what process control involves 2.2. Explain the sorts of problems that can arise with the process and what early warning signs there are 2.3. Describe what interventions should be applied, when and by whom, what process control records are kept and why it is important that these are kept complete and accurate 2.4. Assess what level of monitoring is required by different processes and what information to gather and when 2.5. Explain how to compare data with expected values, the importance of following specified monitoring procedures 2.6. Identify when a process problem should be considered minor or significant
3. Know how to determine the nature of process quality problems	3.1. Assess why it is important that the solution results in operating conditions being restored 3.2. Describe why it is logical to first investigate the most likely causes of a problem, before looking any further and why it is important to gather sufficient information about a problem before drawing conclusions 3.3. Explain how to read and analyse relevant data in tables, print-outs and schematics, what conventions are used in the process and the units of measurement used and what they mean 3.4. Describe the sorts of records kept, how to complete them, where they are stored and who has access to them
4. Know how to maintain own and others' safety	4.1. Describe what own responsibilities are with regard to health and safety 4.2. Identify when and how to wear appropriate PPE 4.3. Describe the agreed health and safety procedures that relate to controlling risks to health, safety and the environment 4.4. Explain what the limits of own responsibility are with regard to health and safety

5. Know how to follow organisational procedures	5.1. Explain what working practices and authorisations apply 5.2. Describe the lines of communication and procedures that should be followed in a given situation and why it is important to work within the rules of the organisation

UNIT PPO-R 3.11C	**SOLVE PROCESS PROBLEMS WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**4**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to solve process problems on plant/equipment within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate identifying at least one production problem and limiting its consequences
- Demonstrate diagnosing at least two different production problems/causes and selecting likely solutions
- Demonstrate implementing and evaluating the solution to at least two different production problems on replicated process plant equipment

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced operator / technician, wishing to prove their competence following a vocational training programme.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Problems may arise from different causes. Problems can be dealt with directly, may require the assistance of others, or must be notified to a trainer/supervisor or specialist contractor. Problems may include significant or minor deviations from process quality specifications, and/or significant or minor departure of process parameters from expected norms.

Appropriate/relevant others – may be trainers, supervisors, maintenance staff, other learners etc.

Possible faults and causes could include:

- Faults or malfunctioning of the process equipment or system
- Faults or malfunctioning of control system for the process
- Faults in the materials supplied to the process

Solution/s that could be carried out could involve making system adjustments and changes themselves, seeking the assistance of others with particular expertise, reporting the problem to a superior.

Materials may include solids, liquids and gases.

Operating instructions and/or specification are the set of instructions which detail the process and the quality/quantity/time outcomes for the operation, including normal operating parameters for the replicated process/production environment.

Equipment/plant might include equipment/plant where there is some interaction between items and/or people.

Problems can relate to materials, equipment or specifications, or to any combination of these. Typical production problems include those with a similar complexity, but not limited to:

- Product contamination
- Loss of yield
- Equipment damage
- Non-conformance
- Non-achievement of specified quantity/time and/or quality requirements
- Health/safety/environmental problems

Problem solving, for this unit, does not include emergency shutdown.

Investigative methods used to find the solution may include, but are not limited to:

- Inspecting
- Interviewing
- Testing of materials
- Testing of equipment
- Trying out solutions

Authority is that which is given to the person responsible for the operation.

Documentation includes any relevant reports/records/recommendations and any other documentation.

Communication methods include individually or in groups, either:

- Written
- Spoken
- Electronic

Recommendations may include some or all of the following:

- Improving quality
- Improving quantity
- Increasing reliability
- Safety aspects
- Environmental aspects
- Improving time scales

Health, safety and environmental legislation includes all relevant legislation.

PPE (Personal Protective Equipment) to be specified, when necessary.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Determine the nature and significance of process problems on plant/equipment within a replicated process/production environment	1.1. Promptly identify when a problem has occurred 1.2. Gather enough information to be able to accurately identify the sort of problem that has occurred 1.3. Use the correct criteria to decide whether the problem needs immediate action or whether it can be allowed to continue until a more convenient time before dealing with it 1.4. Apply the correct criteria and a logical approach to decide on the likely cause of the problem 1.5. Employ the correct criteria to decide whether the assistance of others will be needed to deal with the problem
2. Diagnose faults and the causes of process problems on plant/equipment within a replicated process / production environment	2.1. Apply all relevant information to help identify possible faults and causes 2.2. Investigate possible faults and causes of production problems on plant/equipment within a replicated process/production environment 2.3. Diagnose possible faults and problems and select appropriate action, within the limits of own responsibility 2.4. Provide those carrying out remedial actions with enough detail to ensure that the problem is dealt with fully and effectively
3. Select solutions to process problems on plant/equipment within a replicated process/production environment	3.1. Take decisions and set them in motion without any unnecessary delay, within the limits of own responsibility 3.2. Choose a course of action which will safely limit unwanted effects on the replicated system and process 3.3. Keep accurate and complete documentation on the actions taken
4. Implement chosen solutions on plant/equipment within a replicated process/production environment	4.1. Implement chosen solution(s) within the limits of own authority 4.2. Implement the solution without undue delays, compromising quality, safety or wasting resources 4.3. Keep accurate and complete documentation on the result 4.4. Identify and report any information arising during monitoring which may affect the diagnosis and response to similar problems in the future and submit to appropriate person 4.5. Modify the actions taken if the problem changes or they do not work as intended 4.6. Make recommendations to the appropriate person based on the information gained from the evaluation

5. Evaluate chosen solutions on plant/equipment within a replicated process/production environment	5.1. Gather sufficient information to allow the accurate monitoring of how effective a solution is in dealing with the problem 5.2. Carry out assessments within a sensible timeframe according to how quickly the effects of the solution should be apparent 5.3. Continue with assessments until the problem has been fully resolved 5.4. Use the correct criteria in evaluating the solution
6. Maintain own and others' safety	6.1. Work safely at all times 6.2. Maintain safety standards at all times 6.3. Wear Personal Protective Equipment where appropriate

UNIT PIO 3.13K	**HOW TO CONDUCT AN ASSESSMENT OF RISKS IN THE WORKPLACE WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**34**

Unit Overview

This unit addresses the knowledge required to conduct an assessment of risk in the workplace within processing industries environments.

Assessment Guidance and Evidence Requirements

The learner should provide evidence to meet all the required knowledge and understanding within this unit. This could be provided through different types of evidence and assessment methods, for example learner statements, questioning and professional discussion which should be recorded for verification.

- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

This unit addresses the knowledge needed to identify hazards in the workplace, assess the level of risk resulting from those hazards, make recommendations to control the risk and review the results.

Fundamental to this unit is an understanding of the process of carrying out a risk assessment. A person competent in this unit should know how to carry out risk assessments according to regulatory requirements.

Key Points Regarding Health and Safety Legislation and Regulations

Health and Safety at Work Act 1974

The Health and Safety at Work Act 1974 is the main piece of legislation under which nearly all other regulations are made. It is for this reason that only this piece of legislation is specifically referred to in this Unit.

Employers have a legal duty under this Act to ensure, so far as is reasonably practicable, the health, safety and welfare at work of the people for whom they are responsible and the people who may be affected by the work they do.

Under this Act it is also important to be aware that all people at work, not just employers, have a duty to take reasonable care to avoid harming themselves or others through the work they do.

Risks should be reduced “so far as is reasonably practicable”. This term means the duty-holder (in most instances the employer) can balance the cost against the degree of risk although obviously any Health and Safety Inspectors would expect that relevant good practice is followed.

According to the Act:

Employers must safeguard so far as is reasonably practicable, the health, safety and welfare at work of all the people who work for them and “other persons”. This applies in particular to the provision and maintenance of safe plant and systems of work, and covers all machinery, equipment and substances used.

People at work also have a duty under the Act to take reasonable care to avoid harm to themselves or to others by their working practices, and to co-operate with employers and others in meeting statutory requirements. The Act also requires employees not to interfere with or misuse anything provided to protect their health, safety or welfare in compliance with the Act.

Other Legislation

There is an array of health and safety regulations and codes of practice which affect people at work. There are regulations for those who, for example, work with electricity, or work on construction projects, as well as regulations covering noise at work, manual handling, working with VDUs, or dealing with substances hazardous to health, etc. The specific requirements for all or any of these can be obtained from HSE local offices.

As many of the regulations are only relevant to certain workplaces or working practices no specific reference has been made in the Knowledge Requirements to any of these regulations. The phrase "their responsibilities for health and safety as required by any specific legislation covering their job role" is intended to relate to those specific pieces of legislation important to the learner's workplace and/or working practices which the learner should be able to find out about.

The following terms have a specific meaning in this unit:

Procedures - Specifications of how to carry out work activities in a manner that will ensure the required outcomes if the procedure is followed accurately. All workplace policies, practice and procedures should be specified.

Resources:
A range of resources which are used in any activity.
These could include:

- Information, documentation and specifications
- Manufacturer/supplier data for equipment and materials
- Materials
- Tools
- Equipment

Hazard/risk:
The hazards covered by this unit are relating to:

- The use of plant and equipment
- The use of substances hazardous to health
- The workplace layout
- The working practices
- The job role
- People with special needs

Each organisation will have its own risk control strategy; the learner will be required to work within this.

Relevant people - People who have expertise in and/or responsibility for the areas of work affected by the procedure. This is likely to include colleagues with production, safety, health, environment and quality specialisms.

Workplace:
This is the single or multiple areas in which the learner carries out their work.
Changes in the workplace covered by this unit are in relation to:

- Layout of workplace
- New facilities and services

Workplace policies - The Workplace Policies covered by this unit are documentation prepared by the employer on the procedures to be followed regarding health and safety matters. It could be the employer's safety procedures covering aspects of the workplace that should be drawn to the employees' (and "other persons") attention.

Other persons - This refers to everyone covered by the Health and Safety at Work Act including: visitors, members of the public, colleagues, contractors, clients, customers, patients, students, pupils.

Responsible persons:
The person or persons at work to whom the learner should report any health and safety issues or hazards. This could be a supervisor, line manager or their employer. Responsible persons covered by this unit are:

- Management associated with the examined activities
- Employees associated with the examined activities
- Decision makers
- Union representatives
- Staff representatives

Information sources:
Information sources covered by this unit are:

- Internal Health and Safety experts
- HSE offices
- Relevant industry publications
- External organisations

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how and why risk assessments are carried out	1.1. Describe the resources required for a risk assessment to take place 1.2. Describe the effective procedures for carrying out a risk assessment 1.3. Explain the purpose, legal implications and importance of carrying out a risk assessment
2. Know how to consider the working environment when carrying out a risk assessment	2.1. Identify the work areas and people for whom they are carrying out the assessment 2.2. Identify the work activities of the people in the workplace where they are carrying out the risk assessment
3. Know how to identify and prioritise hazards	3.1. Explain the methods of identifying hazards including direct observation, examining records, or interview 3.2. Identify the hazards that are most likely to cause harm to health and safety
4. Know the importance of effective communication when the results of a risk assessment are known	4.1. Explain what to do with the results of the risk assessment 4.2. Describe the importance of dealing with or promptly reporting risks 4.3. Explain how to communicate effectively
5. Know when to involve other people in the risk assessment, if this is required	5.1. Identify own limitations, job responsibilities and capabilities 5.2. Explain where to find expert advice and guidance
6. Know how to follow organisational and regulatory procedures	6.1. Explain their legal duties for health and safety in the workplace as required by the Health and Safety at Work Act 1974 6.2. Identify the responsibilities for risk assessments as required by the Management of Health and Safety at Work Regulations 1992 and other related regulations 6.3. Explain their duties for health and safety as defined by any specific legislation covering their job role 6.4. Identify the particular health and safety risks which may be present in their own job role and the precautions to be taken 6.5. Identify information sources for risk assessments (e.g. HSE publication)

UNIT PPO-R 3.13C	**CONDUCT AN ASSESSMENT OF RISKS IN THE WORKPLACE WITHIN A REPLICATED PROCESS/PRODUCTION ENVIRONMENT**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to conduct an assessment of risk in the workplace within a replicated process/production environment.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should demonstrate that they have:

- Identified a minimum of two types of hazard from those listed below:
  1. The use of plant and equipment
  2. The use of substances hazardous to health
  3. The workplace layout
  4. The working practices
  5. The job role
  6. People with special needs

- Used a minimum of one type of information source listed below:
  1. Internal Health and Safety experts
  2. HSE offices
  3. Relevant industry publications
  4. External organisations

- Presented the results of a risk assessment to a minimum of two persons from the list below:
  1. Supervisors/trainers associated with the examined activities
  2. Learners associated with the examined activities
  3. Company HSE Manager

- Made a comparison between previous and new working practices for a minimum of one of the types listed below:
  1. Plant, machinery and equipment
  2. Substances or materials
  3. People

- Assessed a minimum of one of the types of changes in the replicated workplace environment for new hazards from those listed below:
  1. Layout of workplace
  2. New facilities and services

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Replicated workplace performance evidence is mandatory.
- The assumption is made that the learner undertaking this unit will be an inexperienced employee, developing and seeking recognition of their competence following a vocational training programme.

Information on use of Assessment Context

This unit addresses the competence needed to identify hazards in the replicated workplace, assess the level of risk resulting from those hazards, make recommendations to control the risk and review the results.

Fundamental to this unit is an understanding of the process of carrying out a risk assessment. A person competent in this unit should be able to carry out risk assessments according to regulatory requirements.

Key Points Regarding Health and Safety Legislation and Regulations

Health and Safety at Work Act 1974

The Health and Safety at Work Act 1974 is the main piece of legislation under which nearly all other regulations are made. It is for this reason that only this piece of legislation is specifically referred to in this Unit.

Employers have a legal duty under this Act to ensure, so far as is reasonably practicable, the health, safety and welfare at work of the people for whom they are responsible and the people who may be affected by the work they do.

Under this Act it is also important to be aware that all people at work, not just employers, have a duty to take reasonable care to avoid harming themselves or others through the work they do.

Risks should be reduced "so far as is reasonably practicable". This term means the duty-holder (in most instances the employer) can balance the cost against the degree of risk although obviously any Health and Safety Inspectors would expect that relevant good practice is followed.

According to the Act:

Employers must safeguard so far as is reasonably practicable, the health, safety and welfare at work of all the people who work for them and "other persons". This applies in particular to the provision and maintenance of safe plant and systems of work, and covers all machinery, equipment and substances used. People at work also have a duty under the Act to take reasonable care to avoid harm to themselves or to others by their working practices, and to co-operate with employers and others in meeting statutory requirements. The Act also requires employees not to interfere with or misuse anything provided to protect their health, safety or welfare in compliance with the Act.

Other Legislation

There is an array of health and safety regulations and codes of practice which affect people at work. There are regulations for those who, for example, work with electricity, or work on construction projects, as well as regulations covering noise at work, manual handling, working with VDUs, or dealing with substances hazardous to health, etc. The specific requirements for all or any of these can be obtained from HSE local offices.

As many of the regulations are only relevant to certain workplaces or working practices no specific reference has been made in the Knowledge Requirements to any of these regulations. The phrase "their responsibilities for health and safety as required by any specific legislation covering their job role" is intended to relate to those specific pieces of legislation important to the learner's workplace and/or working practices which the learner should be able to find out about.

The following terms have a specific meaning in this unit:

Procedures - Specifications of how to carry out work activities in a manner that will ensure the required outcomes if the procedure is followed accurately. All workplace policies, practice and procedures should be specified.

Hazard/risk:
The hazards covered by this unit are relating to:

- The use of plant and equipment
- The use of substances hazardous to health
- The workplace layout
- The working practices
- The job role
- People with special needs

Each organisation will have its own risk control strategy; the learner will be required to work within this, within the replicated process/production environment.

Relevant people - People who have expertise in and/or responsibility for the areas of work affected by the procedure. This is likely to include colleagues with production, safety, health, environment and quality specialisms.

Appropriate/relevant others – may be trainers, supervisors, health and safety advisor, other learners etc.

Replicated Workplace: This is the single or multiple areas in which the learner carries out their work. Changes in the workplace covered by this unit are in relation to:

- Layout of workplace
- New facilities and services

Workplace policies – The Workplace Policies covered by this unit are documentation prepared by the employer on the procedures to be followed regarding health and safety matters. It could be the employer's safety procedures covering aspects of the workplace that should be drawn to the employees' (and "other persons") attention.

Other persons - This refers to everyone covered by the Health and Safety at Work Act including: visitors, members of the public, colleagues, contractors, clients, customers, patients, students, pupils.

Responsible persons: The person or persons in the replicated workplace to whom the learner should report any health and safety issues or hazards. This could be a supervisor, line manager or their employer. Responsible persons covered by this unit are:

- Management associated with the examined activities
- Trainers/learners associated with the examined activities
- HSE manager

Information sources:
Information sources covered by this unit are:

- Internal Health and Safety experts
- HSE offices
- Relevant industry publications
- External organisations

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Prepare to carry out an assessment of risks within a replicated process/production environment	1.1. Define clearly, why and where the risk assessment will be carried out 1.2. Confirm that all the information available to them on statutory health and safety regulations is up-to-date and from recognised and reliable information sources 1.3. Select a method of identifying hazards appropriate to the workplace being assessed within the replicated process/production environment
2. Ensure compliance with industry and legal requirements within a replicated process/production environment	2.1. Confirm that industry standards and all other reasonable precautions are in place 2.2. Review all legal requirements that are appropriate to the replicated workplace and working practices to ensure effective control measures are in place
3. Identify hazards and where they are likely to occur in the workplace within a replicated process / production environment	3.1. Ensure their investigation fully identifies those areas in the replicated workplace where hazards with a potential for serious harm to health and safety are most likely to occur 3.2. Identify hazards which could result in serious harm to others 3.3. Identify hazards that could be eliminated
4. Deal with risks that are potentially harmful to others	4.1. Start their risk assessment for hazards that cannot be eliminated, with those hazards that are most likely to cause serious harm to others 4.2. Assess the level of risk/s and consider how the risk/s can be controlled to minimise harm
5. Record the results of the risk assessment, identifying non-compliance	5.1. Record hazards that could result in harm to others in a way which meets legal, good practice and workplace requirements 5.2. List unacceptable risk/s in priority order including all breaches of relevant health and safety legislation and replicated workplace procedures
6. Communicate the results of the risk assessment in the correct way	6.1. Present and report the results of the risk/s assessment to responsible persons in the agreed format and timescale 6.2. Prepare a risk/s assessment report containing recommendations for minimising risk/s
7. Work safely, involving others when necessary	7.1. Recognise own limitations and seek expert advice and guidance on risk assessment when appropriate from relevant others 7.2. Work safely at all times
8. Take account of existing and previous workplace practices when analysing potential risks within a replicated process/production environment	8.1. Compare the latest risk/s assessment to current workplace and working practices 8.2. Identify, accurately, any significant differences between previous and new working practices 8.3. Identify, accurately, new hazards arising from changes in the workplace or working practices

9. Monitor the effects of the risk	9.1. Investigate the action taken as a result of their assessment and review it if necessary 9.2. Make changes to their risk/s assessment in line with the review 9.3. Inform, promptly, everyone affected by the changes