LEVEL 3 NVQ DIPLOMA IN PROCESSING INDUSTRIES OPERATIONS TECHNICAL SUPPORT

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 PAA\VQ-SET 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 3 NVQ DIPLOMA IN PROCESSING INDUSTRIES OPERATIONS – TECHNICAL SUPPORT

Qualification Summary

This qualification provides recognition of the skills and knowledge of individuals working in a processing environment in the chemical, pharmaceutical, petrochemical and nuclear environments.

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 285

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 480

Achieving the Qualification

20 Units must be achieved (10 knowledge and 10 competence units).

Mandatory Units: All 6 Mandatory Units must be achieved.

Optional Units Group 1: Learners must achieve 6 units. Knowledge and competence units must be taken in combination i.e. if unit 2.10k is chosen, unit 2.10c must also be completed; and vice-versa.

Optional Units Group 2: Learners must achieve 8 units. Knowledge and competence units must be taken in combination i.e. if unit 2.10k is chosen, unit 2.10c must also be completed; and vice-versa.

If units 2.10c and 2.10k and/or 3.7c and 3.7k have been chosen in Option Group 1, they cannot again be chosen in Option Group 2.

Mandatory Units

Unit No.	Unit Name	Credit Value
1.12k	How to Handover within Processing Industries Environments	2
1.12c	Handover within Processing Industries Environments	2
1.13k	How to Work Effectively in a Team within Processing Industries Environments	3
1.13c	Work Effectively in a Team within Processing Industries Environments	2
3.10k	How to Carry Out Emergency Procedures within Processing Industries Environments	3

3.10c	Carry Out Emergency Procedures within Processing Industries Environments	2

Optional Units – Group 1

Learners must achieve 6 units.

Unit No.	Unit Name	Credit Value
2.10k	How to Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments	3
2.10c	Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments	3
3.7k	How to Plan to Maintain Product Integrity within Processing Industries Environments	3
3.7c	Plan to Maintain Product Integrity within Processing Industries Environments	3
3.8k	How to Contribute to Standard Operating Procedures within Processing Industries Environments	3
3.8c	Contribute to Standard Operating Procedures within Processing Industries Environments	2
3.11k	How to Solve Process Problems within Processing Industries Environments	5
3.11c	Solve Process Problems within Processing Industries Environments	4

Optional Units – Group 2

Learners must achieve 8 units.

Unit No.	Unit Name	Credit Value
2.10k	How to Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments	3
2.10c	Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments	3
2.14k	How to Contribute to the Protection of the Environment within Processing Industries Environments	2
2.14c	Contribute to the Protection of the Environment within Processing Industries Environments	2
3.2k	How to Control Emergencies and Critical Situations within Processing Industries Environments	5
3.2c	Control Emergencies and Critical Situations within Processing Industries Environments	3

3.6k	How to Contribute to the Maintenance of Product Quality within Processing and Manufacturing Environments	5
3.6c	Contribute to the Maintenance of Product Quality within Processing and Manufacturing Environments	5
3.7k	How to Plan to Maintain Product Integrity within Processing Industries Environments	3
3.7c	Plan to Maintain Product Integrity within Processing Industries Environments	3
3.9k	How to Allocate Personnel to Maintain Processing within Processing Industries Environments	3
3.9c	Allocate Personnel to Maintain Processing within Processing Industries Environments	2
3.12k	How to Enable Individual Learning Through Coaching within Processing Industries Environments	2
3.12c	Enable Individual Learning Through Coaching within Processing Industries Environments	2
3.13k	How to Conduct an Assessment of Risks in the Workplace within Processing Industries Environments	4
3.13c	Conduct an Assessment of Risks in the Workplace within Processing Industries Environments	3
3.14k	How to Identify Improvements to Energy Efficiency within Processing Industries Environments	3
3.14c	Identify Improvements to Energy Efficiency within Processing Industries Environments	3
3.15k	How to Enable Learning Through Demonstrations and Instruction within Processing Industries Environments	2
3.15c	Enable Learning Through Demonstrations and Instruction within Processing Industries Environments	2

Progression

This Diploma is part of a suite of qualifications developed from the Processing Industries Operations National Occupational Standards (NOS) at Levels 2 to 3.

Further information can be found on the PAA\VQ-SET website www.paa-uk.org 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.

PAA\VQ-SET Centres must ensure that people involved in the assessment process have the appropriate expertise and are adequately informed and supported to fulfil their responsibilities.

ASSESSMENT STRATEGY

Below is the information to support the assessment requirements of the qualification:

- Mandatory use of evidence from workplace performance
- Use of Simulation
- Occupational competence of assessors and verifiers

Mandatory use of evidence from workplace performance

a. Unless the use of simulation is expressly permitted within the qualification or unit specific evidence requirements, evidence must demonstrate the learner's competence in a real or realistic environment.

b. Knowledge and Understanding will be assessed via (pre-set and/or free form) questions, or by inference from performance, which cover three primary types of knowledge:

- Knowledge of facts and procedures
- Understanding of principles, concepts and underpinning procedures
- How to apply principles and procedures in specific contexts

All questions must be asked by the assessor at appropriate moments throughout the assessment process, preferably linked to observed activity and/or review of documentary evidence. The questions asked of, and answers provided by, the learner must be recorded.

Use of Simulation

c. The qualification or unit specific assessment requirements will define where evidence from simulation is acceptable, and in which contexts.

Simulation should be used only where direct evidence of learner performance cannot be obtained. Under these circumstances simulation may be used for summative assessment. Reasons for the use of simulation should be made clear to and agreed by the external verifier and should include the following details:

- which competence (and standards) the simulation was designed to assess;
- the kind of equipment, facilities and physical environment proposed for the simulation of performance. It is unlikely that the External Verifier will approve a simulation if it does not involve real plant and equipment;
- how the simulated activity relates to the learner's normal work context in terms of the pressures of time, access to resources and access to information, and the communication media; and

- how the simulation was set up and conducted, preferably supported by physical evidence such as photographs or inspection of a test rig.

  Assessors, internal verifiers and external verifiers should monitor the proportion of evidence generated via simulations to ensure that it is not the primary source of a learner's claim to competence.

d. Under these circumstances simulations are reserved for aspects of competence illustrated by the following contexts:

- where demonstration of emergency shutdown and related safety procedures would be; **dangerous and/or disruptive** to plant/environment/individuals; **too costly** such as total plant shutdown or dealing with spillage of dangerous substances; where **issues of confidentiality** restrict access to real work opportunities;
- demonstrating specific aspects of the operation which rarely or never occur due to effective quality assurance systems;
- the capacity to integrate disparate knowledge to cope with unforeseen events and to solve problems; or
- aspects of working relationships and communications for which no opportunity has presented for the use of naturally occurring workplace evidence of learner performance.

e. Simulation must enable the individual to demonstrate competence in a real or realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, reflect normal working situations and use relevant industrial or commercial standards and procedures. Short work placements or non-realistic work environments which do not replicate the pressures and requirements of normal commercial or industrial activities will not be acceptable. The bulk of the learner's evidence should be drawn from their normal working activity and not consist of artificially contrived opportunities for one-off demonstration of competence. Similarly equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.

f. Simulation must enable the individual to acquire his/her skills and knowledge in a realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, it reflects normal working situations and uses relevant industrial or commercial standards and procedures. Where possible providers should attempt to replicate the pressures and requirements of normal commercial or industrial activities. Equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.

g. Circumstances outside of those listed in Section D above may also be considered suitable for the use of simulation with the agreement of the External Verifier and PAA\VQ-SET. Under these circumstances simulation may be used for formative assessment only.

Occupational competence of Assessor and Verifiers

h. 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 awards and a full understanding of that part of the award for which they have responsibility.
- should hold or be working towards suitable qualifications for assessment, as defined by PAA\VQ-SET.

i. 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 a PAA\VQ-SET recognised centre
- must have a working knowledge of the awards they are internally verifying
- should hold or be working towards suitable qualifications for verification, as defined by PAA\VQ-SET.

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. PAA\VQ-SET'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 PAA\VQ-SET 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

Term	Definition
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 3 NVQ DIPLOMA IN PROCESSING INDUSTRIES OPERATIONS – TECHNICAL SUPPORT

CONTENT OF THE QUALIFICATION

MANDATORY UNITS

UNIT 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 1.12C	**HANDOVER WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**4**

Unit Overview

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

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.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 1.12k - How to Handover within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their competence.

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.

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. Be able to follow handover procedures	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 1.5. Ensure that security and confidentiality is observed where necessary 1.6. Check that they have any relevant documentation that they may need to proceed
2. Be able to 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 2.3. Check that any information is recorded clearly and accurately at the time of the handover
3. Be able to 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. Be able to work safely during handover	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. Be able to follow operational and organisational procedures when carrying out handover	5.1. Wear appropriate personal protective equipment 5.2. Communicate effectively, with relevant personnel 5.3. Complete any relevant handover documentation clearly and accurately, e.g. the permit to work or equivalent 5.4. Deal promptly with any problems that arise, reporting any that cannot be solved or are outside the limits of responsibility

UNIT 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 1.13C	**WORK EFFECTIVELY IN A TEAM WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**6**

Unit Overview

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

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should demonstrate competence in this unit over a period of time (approximately 3 months), working with others on the plant on a one to one basis.

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

Although the unit title refers to teamwork, many process operators work alone. For the purpose of this assessment, the team is considered to be the learner, the person to who she/he reports, and anyone else with whom he / she communicates.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 1.13k – How to Work Effectively in a Team within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their competence.

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.

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. Be able to ensure that personnel understand the work to be carried out	1.1. Check that all personnel, including self, know, understand and agree to responsibilities 1.2. Check that the work activity is understood
2. Be able to minimise disruptions	2.1. Work within agreed time schedules 2.2. Ensure that the activity proceeds as planned
3. Be able to use and monitor the effectiveness of communication methods at all times	3.1. Check the need to inform others who may be affected by an activity 3.2. Use appropriate methods of communication to keep personnel informed 3.3. Check that all personnel have received the necessary information 3.4. Keep other relevant personnel informed of the progress of the activity
4. Be able to deal with problems	4.1. Deal promptly with any problems that arise, that are within limits of 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. Be able to assist others	5.1. Identify when assistance is required 5.2. Give assistance when required if it is within the limit of authority
6. Be able to liaise with and support others	6.1. Give constructive support and feedback to appropriate personnel 6.2. Receive support and feedback from personnel
7. Be able to follow organisational and operational procedures	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 3.10K	**HOW TO CARRY OUT EMERGENCY PROCEDURES WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to comply with site/plant emergency procedures 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:

Emergency:
Emergencies could include those with a similar complexity to:

- 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

Action:
Other actions to be taken could include those of a similar complexity to:

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

Materials - May include solids, liquids and gases.

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

Problems - These can relate to either personnel and/or equipment.

Documentation - Including that relating to emergencies, including reports and any other relevant documentation.

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

Assess the hazard - To assess the likelihood of harming themselves and/or others by taking some form of action.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how to respond to an emergency promptly and efficiently	1.1. Explain the importance of taking immediate action which is appropriate to the emergency 1.2. Explain the consequences of not taking immediate action 1.3. Explain the importance of checking the location of an emergency 1.4. Describe the methods of raising the alarm
2. Know how to communicate and inform others, relevant to the emergency	2.1. Describe how to provide clear and accurate details on the nature and location of the emergency 2.2. Describe when and how to alert other personnel to the emergency 2.3. Explain the importance of communication with relevant others 2.4. Describe the methods of communication to use 2.5. Explain the importance of giving a full and accurate report of the incident
3. Know how to minimise the effect of an emergency	3.1. Describe the methods to try and stop panic 3.2. Explain the importance of containing emergencies and the methods used to contain them 3.3. Describe how to comfort and reassure casualties 3.4. Describe how to minimise environmental damage and why this is important
4. Know how to maintain the safety of self and others when dealing with an emergency	4.1. Explain the importance of following safe working practices 4.2. Describe own responsibilities with regard to health, safety and environment

UNIT 3.10C	**CARRY OUT EMERGENCY PROCEDURES WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to comply with site/plant emergency procedures within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate raising the alarm on discovering all seven different types of emergency specified
- Demonstrate minimising the effect of three emergencies (listed in the assessment context) and preparing two reports of the incidents (one written, one oral)
- Describe how to respond to the four other emergencies specified in the assessment context but not demonstrated practically

Assessment Guidance

- The use of simulation will only be considered relevant and acceptable in rare or dangerous occurrences (see below) in the assessment of this unit:
    - Health, safety and environmental issues
    - Emergency scenarios
    - Rare occurrences at work
- Workplace performance evidence is mandatory for the rest of the unit.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.10k – How to Carry out Emergency Procedures within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their competence.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Emergency:
Emergencies could include those with a similar complexity to:

- 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

Action:
Other actions to be taken could include those of a similar complexity to:

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

Materials - May include solids, liquids and gases.

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

Problems - These can relate to either personnel and/or equipment.

Documentation - Including that relating to emergencies, including reports and any other relevant documentation.

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

Assess the hazard - To assess the likelihood of harming themselves and/or others by taking some form of action.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to respond to an emergency promptly and efficiently	1.1. Take prompt action, appropriate to the emergency 1.2. Check the location and type of the emergency 1.3. Activate the appropriate alarm on discovering the emergency
2. Be able to communicate and inform others, relevant to the emergency	2.1. Provide accurate details on nature and location of the emergency to emergency service 2.2. Alert other people to the emergency, if necessary 2.3. Communicate with relevant people whenever necessary during the emergency 2.4. Give a full and accurate report of the emergency
3. Be able to minimise the effect of an emergency to people and the environment	3.1. Try to ensure that people do not panic 3.2. Minimise the effect on the environment by using appropriate techniques 3.3. Comfort and reassure any casualties in the emergency
4. Be able to maintain the safety of self and others when dealing with an emergency	4.1. Assess the risk to self and others of trying to contain the emergency 4.2. Take appropriate action by following the correct procedure, if the risk is not increased 4.3. Follow safe working procedures at all times

OPTIONAL UNITS – GROUP 1

UNIT 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 • What personal protective equipment to use • When and why it should be used 7.4. Describe personal responsibilities with regard to health, safety and environment

UNIT 2.10C	**CLEAN AND PREPARE COMPLEX ITEMS OF PLANT AND EQUIPMENT FOR PRODUCTION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
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 processing industries environments.

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 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.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 2.10k - How to Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their competence.

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. Be able to ensure they are ready to proceed	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 to be isolated 1.4. Isolate plant and/or equipment according to SOP
2. Be able to dismantle equipment	2.1. Dismantle plant/equipment correctly
3. Be able to clean equipment	3.1. Clear and clean all residual materials and/or waste from the area to the required standard
4. Be able to reinstate equipment	4.1. Re-assemble plant and/or equipment ready for the next operation
5. Be able to check the status of the plant and/or equipment	5.1. Ensure that all plant/equipment is confirmed as being clean and operational 5.2. Check the status of all plant/equipment, identifying any areas of concern 5.3. Ensure that the condition of all plant/equipment is recorded accurately 5.4. Confirm that the area is in a suitable condition for the next activity
6. Be able to liaise with maintenance personnel	6.1. Ensure that relevant personnel are clear about the nature of the plant/equipment to be maintained 6.2. Communicate effectively with relevant personnel 6.3. Explain to relevant personnel about any problems and current status of the plant/equipment 6.4. Give warnings as appropriate about specific hazards and/or safety requirements 6.5. Ensure that when the plant/equipment is received from maintenance they are clear about the work undertaken 6.6. Record information accurately on correct documentation
7. Be able to deal with problems and follow safe working practices	7.1. Deal promptly with any problems that arise, reporting any which they cannot solve to the appropriate person 7.2. Wear appropriate PPE 7.3. Work safely at all times with regard to materials, equipment and personal safety

UNIT 3.7K	**HOW TO PLAN TO MAINTAIN PRODUCT INTEGRITY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to plan to maintain product integrity 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 and seeking recognition of their knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for the detailed planning of sampling and testing procedures which have to be produced as a result of the initial technical plan. This overall technical plan may have been produced by a different person. It describes competences involved in implementing the technical components of the plan. It is designed for technical experts inside the organisation who devise specifications and procedures to be followed when conducting sampling and testing.

Sampling and testing procedures may be developed, adapted from existing procedures and standards or existing procedures assessed for their suitability and adopted unchanged.

Customers for the plans can be either external to the organisation or internal, e.g. other departments within the organisation.

Possible contexts in which these competences could be used include:
- Establishing a procedure for sampling effluent levels
- Developing procedures for where and how materials will be tested for strength
- Selecting test procedures to apply to new materials being prepared for an external customer

The following terms have a specific meaning in this unit:

Contingencies - To include equipment failure; delays; limitations to access; changes in variables affecting sample condition; safety and environmental changes.

Materials - 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:
Could include the following:
- Quality assurance testing during production
- Water moisture content testing
- On-site sample

Sampling plan:
Contains all relevant information. Could include:

- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request:
Could 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. Could include:

- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Equipment - PPE to be specified, when necessary. Sampling equipment as specified within the specification.

Problems - These can relate to either materials, equipment, personnel, 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, but is not limited to:

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

Risk assessment - To include hazardous materials and contamination.

Waste materials - To include off specification product and waste materials.

Health, safety and environmental legislation - To include 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 identify a representative sample	1.1. Identify the characteristics of a representative sample in terms of: • Correlation of sample to source • Variability • Properties • Size • Location
2. Know how to factor in the requirements for safe working practices when planning sampling and testing	2.1. Assess the potential impact of test upon health, safety and the environment 2.2. Describe the correct disposal in regards to environmental, health and safety procedures 2.3. Discuss the requirements regarding handling, storage and disposal of materials 2.4. Explain the safety, health and environmental requirements and procedures for sampling and testing 2.5. Identify the contingencies arising during testing and how to deal with them 2.6. Identify the extent of required statistical significance 2.7. Discuss the calibration requirements for equipment
3. Know how to maintain the integrity of the sample	3.1. Explain the impact of sampling method chosen upon source and sample 3.2. Discuss the principles of sampling and testing systems and techniques 3.3. Examine the factors influencing integrity of the sample 3.4. Identify the sources and methods of accessing relevant sampling standards
4. Know how to plan in order to develop a suitable testing plan	4.1. Explain the principles of planning 4.2. Identify the relevant test resources and their suitability 4.3. Identify the relevant testing methods appropriate to achieve objectives

UNIT 3.7C	**PLAN TO MAINTAIN PRODUCT INTEGRITY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to plan to maintain product integrity within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner will need to show they can operate in a range of conditions and demonstrate they can deal effectively with the following:

- Conditions relating to site access, possible contamination, equipment, safety factors, minimum disruption, disturbance and damage
- National procedures and operating standards
- Disposing of the sample correctly in relation to safety, health and environmental standard procedures
- Resources in relation to staff, equipment, materials and time
- Conditions of the test environment, test criteria and safety factors
- Qualitative and quantitative requirements of the customer

As the learner carries out their work activity, they will be able to keep the following records as practical evidence. They must:

- Produce three separate sampling or testing plans for three different processes, supported by written documentation including the specification for sampling or testing plans and their related method statements which identifies particular features concerning conditions, safety requirements, accessibility and dealing with contingencies including different sources, types and ranges of features. *(Documentary evidence could include selected Environmental Agency standards, record sheets, calibration documents, COSHH data sheets and risk assessments, standard operating procedures, log books and request forms).*

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.7k – How to Plan to Maintain Product Integrity within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced operator / technician, developing and seeking recognition of their competence.

Information on use of Assessment Context

This unit is for those with responsibility for the detailed planning of sampling and testing procedures which have to be produced as a result of the initial technical plan. This overall technical plan may have been produced by a different person. It describes competences involved in implementing the technical components of the plan. It is designed for technical experts inside the organisation who devise specifications and procedures to be followed when conducting sampling and testing.

Sampling and testing procedures may be developed, adapted from existing procedures and standards or existing procedures assessed for their suitability and adopted unchanged.

Customers for the plans can be either external to the organisation or internal, e.g. other departments within the organisation.

Possible contexts in which these competences could be used include:
- Establishing a procedure for sampling effluent levels
- Developing procedures for where and how materials will be tested for strength
- Selecting test procedures to apply to new materials being prepared for an external customer

The following terms have a specific meaning in this unit:

Contingencies - To include equipment failure; delays; limitations to access; changes in variables affecting sample condition; safety and environmental changes.

Materials - 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:
Could include the following:
- Quality assurance testing during production
- Water moisture content testing
- On-site sample

Sampling plan:
Contains all relevant information. Could include:
- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request:
Could 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. Could include:
- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Equipment - PPE to be specified, when necessary. Sampling equipment as specified within the specification.

Problems - These can relate to either materials, equipment, personnel, 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, but is not limited to:

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

Risk assessment - To include hazardous materials and contamination.

Waste materials - To include off specification product and waste materials.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to plan so that a representative sample is obtained	1.1. Accurately define the characteristics of a representative sample 1.2. Decide the sampling points and frequency of sample taking in order to provide a representative sample
2. Be able to take account of the work environment when planning for sampling, to ensure safe working practices	2.1. Accurately assess the appropriateness and accessibility of the sampling site 2.2. Identify hazards and accurately assess risks 2.3. Make plans to deal with contingencies during sample taking
3. Be able to develop a fit for purpose sampling procedure	3.1. Identify appropriate sampling procedures and incorporate into testing plan 3.2. Incorporate the procedures for maintaining the integrity of the sample into the plan 3.3. Ensure sampling methodology meets customer requirements
4. Be able to establish the conditions for sampling and testing	4.1. Define the conditions under which the sample is to be obtained 4.2. Accurately quantify conditions for testing 4.3. Define a system for correct disposal of waste materials
5. Be able to identify the test requirements to achieve the objectives of the test	5.1. Define properties to be tested for 5.2. Ensure sample conforms with test requirements
6. Be able to identify the correct resources for testing	6.1. Identify and specify appropriate equipment 6.2. Accurately quantify resource requirements for testing
7. Be able to develop a detailed testing plan that contains all the relevant information	7.1. Ensure testing plan contains all relevant information in a form usable by others 7.2. Define within the testing plan the system for correct disposal of sample in accordance with safe operating procedures 7.3. Ensure testing plan includes procedures to deal with contingencies during testing 7.4. Ensure testing methodology meets customer requirements

UNIT 3.8K	**HOW TO CONTRIBUTE TO STANDARD OPERATING PROCEDURES WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to contribute to standard operating procedures 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 and seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Operational requirement is what is required by the operation.

Operational method is the preferred method / way of operating according to best practice and equipment operating instructions.

Procedure/s may include:
- New and/or revised procedures for the operation of equipment/plant. (At least as complex as a single unit operation).
- Related activities such as sampling, testing, cleaning, etc.

SOP Standard operating procedure. The set of instructions that describe the operational requirements for the work to be carried out, including details of the operating instructions/methods. If followed, the required organisational objectives should be more easily achieved in the following areas:
- Quantity
- Quality
- Cost
- Time
- Safety, health and environment

Operating/control parameters are the conditions under which the SOP should take place.

Operating conditions
Control of conditions could be of a similar complexity, but not limited to:
- Temperature, flow, humidity, pressure, density, pH and level

Operational methods may include the different types of operational methods for the type of plant/equipment or activity to be used.

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, where necessary.

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

Process type/operations are batch and/or continuous processing. The following types may be included but are not limited to:

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

Problems can relate to either people and or equipment. Obtaining relevant authority to proceed, drafting, testing, evaluating, obtaining final approval.

Documentation may include that relating to drafting, evaluating and obtaining approval, and any other relevant documentation.

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

Authority is the method in an organisation whereby permission is given to continue and/or proceed.

Personnel are any other people in the organisation who are relevant to the process.

Health, safety and environment to include all relevant legislation and company policy.

Recommendations may include some or all of the following:

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how to review existing procedure(s)	1.1. Describe how to obtain details of operational requirements for the process 1.2. Identify all of the resources that are necessary for the procedure(s) 1.3. Describe the required objectives of the operations 1.4. Explain the importance of checking that all objectives are met by the method 1.5. Discuss how to record all information accurately and clearly
2. Know how to evaluate procedure(s) and offer recommendations	2.1. Discuss the methods of evaluating operational procedure(s) 2.2. Describe how to evaluate various operational methods 2.3. Explain the importance of ensuring all objectives are met by operational procedure(s) 2.4. Explain the importance of and how to select the appropriate method 2.5. State the importance of keeping clear and accurate documentation 2.6. Describe how to make recommendations on procedure(s) if required 2.7. Identify who to submit recommendations to
3. Know how to deal with problems	3.1. Describe the types of problems that may occur and how to recognise and deal with them 3.2. Identify who to report to with unsolvable problems and/or those which are not their responsibility
4. Know how to maintain own and others safety whilst working	4.1. Explain the importance of covering all health, safety and environmental considerations 4.2. Describe personal responsibilities with regard to health, safety and the environment 4.3. Identify what PPE needs to be worn, when and why 4.4. Discuss the importance of communication, and of keeping all relevant personnel informed during the operation

UNIT 3.8C	**CONTRIBUTE TO STANDARD OPERATING PROCEDURES WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to contribute to standard operating procedures within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Prepare at least two draft procedures, one which is new and one which is substantially revised
- Demonstrate evaluating at least two procedures
- Obtain approval for two procedures
- Describe how to obtain site authority

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.8k – How to Contribute to Standard Operating Procedures within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced operator / technician, developing and seeking recognition of their competence.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Operational requirement is what is required by the operation.

Operational method is the preferred method / way of operating according to best practice and equipment operating instructions.

Procedure/s may include:

- New and/or revised procedures for the operation of equipment/plant. (At least as complex as a single unit operation)
- Related activities such as sampling, testing, cleaning etc.

SOP Standard operating procedure. This is the set of instructions that describe the operational requirements for the work to be carried out, including details of the operating instructions/methods. If followed, the required organisational objectives should be more easily achieved in the following areas:

- Quantity
- Quality
- Cost
- Time
- Safety, health and environment

Operating/control parameters are the conditions under which the SOP should take place.

Operating conditions
Control of conditions could be of a similar complexity, but not limited to:

- Temperature, flow, humidity, pressure, density, pH and level

Operational methods may include the different types of operational methods for the type of plant/equipment or activity to be used.

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, where necessary.

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

Process type/operations are batch and/or continuous processing. The following types may be included but are not limited to:

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

Problems can relate to either people and or equipment. Obtaining relevant authority to proceed, drafting, testing, evaluating, obtaining final approval.

Documentation may include that relating to drafting, evaluating and obtaining approval, and any other relevant documentation.

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

Authority is the method in an organisation whereby permission is given to continue and/or proceed.

Personnel are any other people in the organisation who are relevant to the process.

Health, safety and environment to include all relevant legislation and company policy.

Recommendations may include some or all of the following:

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to review existing procedure(s)	1.1. Ensure they have accurate details concerning operational requirements for the process 1.2. Analyse operational methods for the process 1.3. Identify all of the resources that are necessary for the procedure(s) 1.4. Ensure that required objectives are being met by existing procedure(s) 1.5. Check that all objectives of quality, quantity, cost and time are being met by the procedure(s) 1.6. Record the operational method accurately and clearly
2. Be able to evaluate procedure(s) and offer recommendations	2.1. Evaluate selected operational procedure(s) 2.2. Investigate other methods of procedure(s) if required objectives are not being met 2.3. Submit recommendations to appropriate authority 2.4. Record the suggested method of improvement to operational method accurately and clearly
3. Be able to deal with problems	3.1. Deal promptly with any problems that are their responsibility 3.2. Inform the appropriate person of any problems they cannot solve and / or are not their responsibility
4. Be able to follow operational and organisational procedures whilst working	4.1. Ensure that all health, safety and environmental considerations are covered 4.2. Follow safe working procedures at all times with regard to materials, equipment/plant and personal safety 4.3. Wear appropriate PPE 4.4. Communicate effectively with relevant personnel 4.5. Record information accurately using correct documentation

UNIT 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 3.11C	**SOLVE PROCESS PROBLEMS WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**4**
GUIDED LEARNING HOURS	**6**

Unit Overview

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

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

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.11k – How to Solve Process Problems within Processing Industries Environments."
- 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. Be able to determine the nature and significance of process problems	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. Be able to diagnose faults and the causes of process problems	2.1. Apply all relevant information to help identify possible faults and causes 2.2. Investigate possible faults and causes of production problems 2.3. Diagnose possible faults and problems and select appropriate action 2.4. Provide those carrying out remedial actions with enough detail to ensure that the problem is dealt with fully and effectively
3. Be able to select solutions to process problems	3.1. Take decisions and set them in motion without any unnecessary delay 3.2. Choose a course of action which will safely limit unwanted effects on the system and process 3.3. Keep accurate and complete documentation on the actions taken
4. Be able to implement chosen solutions	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 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. Be able to evaluate chosen solutions	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. Be able to maintain own and others' safety	6.1. Work safely at all times 6.2. Maintain safety standards at all times 6.3. Wear PPE when appropriate

OPTIONAL UNITS – GROUP 2

UNIT 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 • What personal protective equipment to use • When and why it should be used 7.4. Describe personal responsibilities with regard to health, safety and environment

UNIT 2.10C	**CLEAN AND PREPARE COMPLEX ITEMS OF PLANT AND EQUIPMENT FOR PRODUCTION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
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 processing industries environments.

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 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.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking “Unit 2.10k - How to Clean and Prepare Complex Items of Plant and Equipment for Production within Processing Industries Environments.”
- The assumption is made that the learner undertaking this unit will be a process operator seeking recognition of their competence.

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. Be able ensure they are ready to proceed	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 to be isolated 1.4. Isolate plant and/or equipment according to SOP
2. Be able to dismantle equipment	2.1. Dismantle plant/equipment correctly
3. Be able to clean equipment	3.1. Clear and clean all residual materials and/or waste from the area to the required standard
4. Be able to reinstate equipment	4.1. Re-assemble plant and/or equipment ready for the next operation
5. Be able to check the status of the plant and/or equipment	5.1. Ensure that all plant/equipment is confirmed as being clean and operational 5.2. Check the status of all plant/equipment, identifying any areas of concern 5.3. Ensure that the condition of all plant/equipment is recorded accurately 5.4. Confirm that the area is in a suitable condition for the next activity
6. Be able liaise with maintenance personnel	6.1. Ensure that relevant personnel are clear about the nature of the plant/equipment to be maintained 6.2. Communicate effectively with relevant personnel 6.3. Explain to relevant personnel about any problems and current status of the plant/equipment 6.4. Give warnings as appropriate about specific hazards and/or safety requirements 6.5. Ensure that when the plant/equipment is received from maintenance they are clear about the work undertaken 6.6. Record information accurately on correct documentation
7. Be able to deal with problems and follow safe working practices	7.1. Deal promptly with any problems that arise, reporting any which they cannot solve to the appropriate person 7.2. Wear appropriate PPE 7.3. Work safely at all times with regard to materials, equipment and personal safety

UNIT 2.14K	**HOW TO CONTRIBUTE TO THE PROTECTION OF THE ENVIRONMENT WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to contribute to the protection of the 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 following terms have a specific meaning in this unit:

Environment is a broad term which refers to the global environment with which we all interact.

The Health and Safety Executive (HSE) define a hazard as "something with potential to cause harm."

A risk is defined by the Health and Safety Executive as "the likelihood of a hazard's potential being realised." In this unit these definitions apply equally to environmental hazards and risks. Risks to the environment covered by this unit are arising from:

- The use of materials and substances hazardous to the environment
- The disposal of waste, materials and substances hazardous to the environment
- Emission of gases, fumes or dust

The workplace is the single or multiple areas in which work is carried out. This may be a shop, office, a manufacturing plant, outdoors, or an educational establishment.

Working practices are any activities, procedures, use of materials or equipment and working techniques used. It also covers any omissions in good working practice which may pose a threat to health and safety.

Workplace policies cover documentation prepared by the employer on the procedures to be followed regarding environmental matters. It could be the employers' environmental policy statement, or guidance covering aspects of the working practices or workplace that should be drawn to the employees' (and "other persons") attention.

Workplace environmental procedures contain the specific instructions or details for people at work to follow for an environmentally friendly working environment. They will contain the instructions, for example, on disposal of materials hazardous to the environment. Legal and workplace environmental procedures covered by this unit are:

- Waste minimisation
- The use of environmentally safe working methods and equipment

- The use of personal protection equipment
- What to do in the event of an emergency involving environmental hazards
- Authorisation for handling, storing, using or disposing of hazardous materials, products or equipment

Reporting procedures covered by this unit are:

- Oral reports
- Written reports

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

Learning Outcome and Assessment Criteria

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
1. Know how to ensure good working practice and procedure with regards to protecting the environment	1.1. Outline workplace policies, precautions and procedures relating to controlling risks to the environment 1.2. Describe the specific workplace environmental procedures covering their job role 1.3. State how to use resources and materials effectively and efficiently
2. Know the relevant legislation and regulations regarding their duties in the workplace	2.1. Outline the aspects of the Environmental Protection Act and relevant regulations which will affect the workplace 2.2. State their duties for the environment as defined by any specific legislation covering their job role
3. Know how to identify risks to the environment arising as a result of workplace activities	3.1. Outline the particular risks to the environment which may be present in their workplace and/or in their own job role 3.2. Explain the importance of remaining alert to the presence of hazards to the environment in the whole workplace 3.3. Outline substances and processes categorised as hazardous to the environment
4. Know how to minimise risks to the environment arising as a result of workplace activities	4.1. Describe the importance of dealing with or promptly reporting risks to the environment 4.2. Identify responsibilities for items (materials / equipment) hazardous to the environment in their job description 4.3. Outline own responsibility for controlling hazards to the environment
5. Know how to carry out tasks in accordance with instructions and workplace requirements to deal with hazards	5.1. Identify suppliers, manufacturers and workplace instructions for the use of equipment, materials and products hazardous to the environment 5.2. State the workplace requirements for handling hazards to the environment which they are unable to deal with 5.3. Identify the responsible person(s) to whom to report environmental matters

UNIT 2.14C	**CONTRIBUTE TO THE PROTECTION OF THE ENVIRONMENT WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**2**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to contribute to the protection of the environment within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

Evidence must be provided to demonstrate competence of identifying risks to the environment arising as a result of workplace activities. Evidence must also be provided that the learner is able to demonstrate competence of reducing the risks to the environment arising as a result of workplace activities.

Evidence must be provided to show the learner has identified and reported a minimum of two types of risks to the environment from those listed below:

1. The use of materials and substances hazardous to the environment
2. The disposal of waste, materials and substances hazardous to the environment
3. Emission of gases, fumes or dust.

In addition, the learner must show that they have followed a minimum of two of the Legal and Workplace environmental procedures listed below:

1. Waste minimisation
2. The use of environmentally safe working methods and equipment
3. The use of personal protective equipment
4. What to do in the event of an emergency involving environmental hazards
5. Authorisation for handling, storing, using or disposing hazardous materials, products or equipment.

Evidence must show the learner has reported environmental hazards using a minimum of one type of method listed below:

1. Oral reports
2. Written reports.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking “Unit 2.14k – How to Contribute to the Protection of the Environment within Processing Industries Environments.”
- The assumption is made that the learner undertaking this unit will be an operator with basic skills, developing and seeking recognition of their competence.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Environment is a broad term which refers to the global environment with which we all interact.

The Health and Safety Executive (HSE) define a hazard as "something with potential to cause harm."

A risk is defined by the Health and Safety Executive as "the likelihood of a hazard's potential being realised." In this unit these definitions apply equally to environmental hazards and risks. Risks to the environment covered by this unit are arising from:

- The use of materials and substances hazardous to the environment
- The disposal of waste, materials and substances hazardous to the environment
- Emission of gases, fumes or dust

The workplace is the single or multiple areas in which work is carried out. This may be a shop, office, a manufacturing plant, outdoors, or an educational establishment.

Working practices are any activities, procedures, use of materials or equipment and working techniques used. It also covers any omissions in good working practice which may pose a threat to health and safety.

Workplace policies cover documentation prepared by the employer on the procedures to be followed regarding environmental matters. It could be the employer's environmental policy statement, or guidance covering aspects of the working practices or workplace that should be drawn to the employee's (and "other persons") attention.

Workplace environmental procedures contain the specific instructions or details for people at work to follow for an environmentally friendly working environment. They will contain the instructions, for example, on disposal of materials hazardous to the environment. Legal and workplace environmental procedures covered by this unit are:

- Waste minimisation
- The use of environmentally safe working methods and equipment
- The use of personal protection equipment
- What to do in the event of an emergency involving environmental hazards
- Authorisation for handling, storing, using or disposing of hazardous materials, products or equipment

Reporting procedures covered by this unit are:

- Oral reports
- Written reports

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

Learning Outcome and Assessment Criteria

Learning Outcomes The learner will:	Assessment Criteria The learner can:
1. Be able to ensure an understanding of good practice with regards to protecting the environment	1.1. Remain up-to-date on environmentally-friendly working practices which are relevant to their workplace 1.2. Identify any current working practices in their job role which could cause harm to the environment 1.3. Follow the up-to-date legal requirements and workplace environmental procedures for their job role
2. Be able to ensure that communication is made with the person(s) responsible for environmental matters	2.1. Correctly name and locate the responsible person(s) in the workplace to whom they should report environmental matters 2.2. Pass on any suggestions for limiting risk/s to the environment to the responsible person(s) 2.3. Report, concisely and accurately, their environmental awareness training needs to the appropriate person(s)
3. Be able to report, identify and control (if appropriate) any environmental hazards	3.1. Report, promptly, those hazards which present high risks to the person(s) responsible for environmental matters 3.2. Identify any materials, products or equipment used in any part of their job role which could cause harm to the environment 3.3. Report, accurately, any differences between legal and workplace regulations and the actual use of materials or products hazardous to the environment 3.4. Control those environmental hazards within their capability and the scope of their job responsibilities 3.5. Report, promptly, risks to the environment that they are unable to deal with
4. Be able to follow instructions regarding safe use and storage	4.1. Follow suppliers, manufacturers and workplace instructions for the safe use and storage of material and products 4.2. Follow suppliers, manufacturers and workplace instructions for the safe use and storage of equipment
5. Be able to handle and dispose of waste, materials and substances hazardous to the environment	5.1. Follow the correct procedure for handling materials and products hazardous to the environment 5.2. Follow the correct procedure for disposing of materials and products hazardous to the environment

UNIT 3.2K	**HOW TO CONTROL EMERGENCIES AND CRITICAL SITUATIONS WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**5**
GUIDED LEARNING HOURS	**42**

Unit Overview

This unit addresses the knowledge required to control emergencies and critical situations 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, supervisor or manager with specific responsibility in emergency situations.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Emergency:
Emergencies could include, but are not limited to:
- 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

Action/operational requirements:
Other actions to be taken could include:
- Emergency shutdown of the plant
- Evacuation of the plant
- Notifying other people
- Assessing risk
- Emergency first aid
- Shut down of the operation

Communication/Communicate - To include spoken, written and/or electronic

PPE - Personal Protective Equipment

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how to access, interpret and take account of information about plant and equipment	1.1. Describe plant layout and its integration with other processes and systems 1.2. Explain the internals of equipment and their function and operation 1.3. Describe how to access and interpret drawings and manuals regarding the plant 1.4. Describe the effects of changes in ambient conditions on plant operation 1.5. Describe how to access and interpret the status of the appropriate equipment and systems, to include: • Detection • Protection • Communications • Evacuation
2. Know the processes involved and how they influence the response to emergencies and critical situations	2.1. Describe methods and consequences of isolation and depressurisation 2.2. Describe the functioning of remote process control, to include: • Instrumentation • Logic 2.3. Identify normal operating parameters and their tolerances 2.4. Explain the composition and properties of produced fluids and gases, to include, where applicable to the industry: • Toxicity • Flammability • Specific gravity (SG) • Temperature 2.5. Describe the reactions taking place and the effect of changes to the physical and chemical properties 2.6. Identify the principles and effect of hydrocarbon hydrate formation, prevention and dispersion, where applicable 2.7. Explain how to access and interpret the status of operations and simultaneous operations
3. Know how to operate and the implications of control systems	3.1. Describe the methods of operating emergency shutdown, and fire and gas control systems 3.2. Explain the potential implications of the emergency shutdown, and fire and gas control systems

4. Know the consequences of emergencies and critical situations	4.1. Describe the effect and potential implications of loss of any system and its reinstatement 4.2. Explain the consequences of emissions to the environment
5. Know how to access and interpret information about external factors relevant to the control of emergencies and critical situations	5.1. Explain how to access and interpret information on weather conditions 5.2. Explain how to access and interpret information on the availability of key emergency response personnel
6. Know the methods of responding to emergencies and critical situations and how to select the appropriate method in the circumstances	6.1. Describe the methods of response and the circumstances in which it would be appropriate to use each one, to include: • Make safe • Isolate • Shutdown • Evacuate the work area • Informing connecting installations and others • Do nothing • Activate internal emergency response teams • Inform duty personnel • Inform adjacent facilities • Activate Emergency Shut Down • Account for people 6.2. Identify any other personnel that must be contacted and describe how to contact them
7. Know how to follow organisational requirements, regulations and legislation	7.1. Describe how to select, use and care for PPE, to include: • Sight/hearing protection • Gloves • Footwear • Hard hats • Respirators 7.2. Explain the implications of statutory (e.g. HASAWA and COSHH) and organisational requirements 7.3. Describe how to interpret operational requirements, e.g. • Policies • Procedures • Instructions • Codes of practice • Standards • Schedules 7.4. Describe the emergency procedures for the installation

UNIT 3.2C	**CONTROL EMERGENCIES AND CRITICAL SITUATIONS WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to control emergencies and critical situations within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

Where the learner does not have the opportunity to cover all aspects of the assessment criteria in the workplace, then the evidence may be supplemented by a realistic simulation and questioning, which will allow the Assessor to infer competence.

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
- Workplace performance evidence is mandatory for the rest of the unit.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.2k – How to Control Emergencies and Critical Situations within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced operator, supervisor or manager with specific responsibility in emergency situations.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Emergency:
Emergencies could include, but are not limited to:

- 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

Action/operational requirements:
Other actions to be taken could include:

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

Communication/Communicate - To include spoken, written and/or electronic

PPE - Personal Protective Equipment

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to maintain a state of readiness in order to respond to an emergency or critical situation	1.1. Access current emergency procedures and report all anomalies 1.2. Hand over all safety critical information effectively 1.3. Take part in drills and exercises correctly
2. Be able to control emergencies and critical situations	2.1. Identify developing and existing critical situations 2.2. Identify all conditions which may affect the emergency response 2.3. Activate all relevant alarms and take appropriate action to the situation 2.4. Monitor the situation effectively and minimise risks to personnel, process, plant and equipment 2.5. Identify and immediately take the actions required to make the situation safe
3. Be able to communicate and act on information when controlling emergencies and critical situations	3.1. Communicate all relevant information and instructions 3.2. Clarify and act upon information received
4. Be able to follow organisational and operational procedures when controlling emergencies and critical situations	4.1. Report and record the critical situation correctly 4.2. Work safely in accordance with operational requirements

UNIT 3.6K	**HOW TO CONTRIBUTE TO THE MAINTENANCE OF PRODUCT QUALITY WITHIN PROCESSING AND MANUFACTURING ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**5**
GUIDED LEARNING HOURS	**42**

Unit Overview

This unit addresses the knowledge required to contribute to the maintenance of product quality within processing and manufacturing 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 taking this unit will be an experienced operator with relevant technical training.

Information on use of Assessment Context

This unit addresses the knowledge required to contribute to the maintenance of product quality. This involves:

- Identifying problems using guidance materials
- Selecting and carrying out defined procedures to deal with a problem

The following terms have a specific meaning in this unit:

Materials may include solids, liquids and gases. Some may be hazardous.

Operating instructions/ 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.

Sampling plan
Contains all relevant information. Could include:

- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request
Could 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. Could include:

- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Problems - These can relate to either materials, equipment, personnel, 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, but are not limited to:

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

Risk assessment - To include hazardous materials and contamination, when appropriate.

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

Quality checks - Quality checks can be carried out on both materials and products.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know the types and uses of materials used in different processes	1.1. Explain what materials are used in different processes 1.2. Describe what happens to the materials as they are processed 1.3. Explain why the materials have to be prepared
2. Know the processes in place to control quality	2.1. Summarise what quality control measurements are taken with regard to product quality 2.2. Explain at what stages product quality is checked 2.3. Explain the quality control systems in their workplace
3. Know how to deal with quality problems according to procedures	3.1. Explain why it is logical to first investigate the most likely causes of a problem before looking any further 3.2. Explain why it is important to gather sufficient information about a problem before drawing conclusions 3.3. Explain how to deal with typical problems 3.4. Clarify who to report unsolvable problems to
4. Know the organisational procedures to follow to contribute to the maintenance of product quality	4.1. Explain what working practices and authorisations apply, 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 4.2. Summarise the sorts of records kept, how to complete them, where they are stored and who has access to them 4.3. Explain what the limits of personal responsibility are with regard to health and safety 4.4. Explain when and how to wear personal protective equipment

UNIT 3.6C	**CONTRIBUTE TO THE MAINTENANCE OF PRODUCT QUALITY WITHIN PROCESSING AND MANUFACTURING ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**5**
GUIDED LEARNING HOURS	**10**

Unit Overview

This unit addresses the skills required to contribute to the maintenance of product quality within processing and manufacturing environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

Evidence must be provided to show that the learner consistently meets all the assessment criteria, and must include the following:

1. Evidence that the learner has made required quality checks on **one** of the following, on at least **three different** occasions
    - Materials
    - Products
2. Evidence that the learner has promptly and correctly identified **one** of the following types of problem
    - Deviations in materials
    - Non-compliance of products
3. Evidence that the learner has made correct decisions based on the working instructions given
4. Evidence that the learner has correctly carried out the actions required to deal with **two different** examples of problems in **one** of the following:
    - Materials
    - Products
5. Evidence that the learner consistently works in a safe manner
6. Evidence that the learner knows who to tell when problems arise in carrying out the procedure as specified
7. Evidence that the learner has correctly filled in pro-forma records about the procedures followed and their results

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking “Unit 3.6k – How to Contribute to the Maintenance of Product Quality within Processing and Manufacturing Environment.”
- The assumption is made that the learner taking this unit will be an experienced operator with relevant technical training.

Information on use of Assessment Context

This unit addresses the competence required to contribute to the maintenance of product quality. This involves:

- Identifying problems using guidance materials
- Selecting and carrying out defined procedures to deal with a problem

The following terms have a specific meaning in this unit:

Materials may include solids, liquids and gases. Some may be hazardous.

Operating instructions/ 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.

Sampling plan
Contains all relevant information. Could include:

- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request
Could 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. Could include:

- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Problems - These can relate to either materials, equipment, personnel, 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, but are not limited to:

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

Risk assessment - To include hazardous materials and contamination, when appropriate.

Quality checks - Quality checks can be carried out on both materials and products.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to carry out quality checks	1.1. Accurately identify quality requirements from operating/sampling instructions 1.2. Make the quality checks in accordance with operating/sampling instructions 1.3. Segregate non complying items according to the operating/sampling instruction 1.4. Label and record appropriately
2. Be able to deal with quality problems according to procedures	2.1. Promptly and correctly identify quality problems 2.2. Accurately record the details of the problem in the correct records 2.3. Deal effectively with problems 2.4. Report any problems that cannot be solved and/or are outside the area of responsibility
3. Be able to follow organisational procedures when contributing to the maintenance of product quality	3.1. Communicate effectively at all times 3.2. Wear PPE when appropriate 3.3. Document all information accurately 3.4. Work safely at all times, following all safety, health and environment (SHE) requirements relevant to the process

UNIT 3.7K	**HOW TO PLAN TO MAINTAIN PRODUCT INTEGRITY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to plan to maintain product integrity 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 and seeking recognition of their knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for the detailed planning of sampling and testing procedures which have to be produced as a result of the initial technical plan. This overall technical plan may have been produced by a different person. It describes competences involved in implementing the technical components of the plan. It is designed for technical experts inside the organisation who devise specifications and procedures to be followed when conducting sampling and testing.

Sampling and testing procedures may be developed, adapted from existing procedures and standards or existing procedures assessed for their suitability and adopted unchanged.

Customers for the plans can be either external to the organisation or internal, e.g. other departments within the organisation.

Possible contexts in which these competences could be used include:
- Establishing a procedure for sampling effluent levels
- Developing procedures for where and how materials will be tested for strength
- Selecting test procedures to apply to new materials being prepared for an external customer

The following terms have a specific meaning in this unit:

Contingencies - To include equipment failure; delays; limitations to access; changes in variables affecting sample condition; safety and environmental changes.

Materials - 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:
Could include the following:
- Quality assurance testing during production
- Water moisture content testing
- On-site sample

Sampling plan:
Contains all relevant information. Could include:

- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request:
Could 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. Could include:

- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Equipment - PPE to be specified, when necessary. Sampling equipment as specified within the specification.

Problems - These can relate to either materials, equipment, personnel, 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, but is not limited to:

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

Risk assessment - To include hazardous materials and contamination.

Waste materials - To include off specification product and waste materials.

Health, safety and environmental legislation - To include 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 identify a representative sample	1.1. Identify the characteristics of a representative sample in terms of: • Correlation of sample to source • Variability • Properties • Size • Location
2. Know how to factor in the requirements for safe working practices when planning sampling and testing	2.1. Assess the potential impact of test upon health, safety and the environment 2.2. Describe the correct disposal in regards to environmental, health and safety procedures 2.3. Discuss the requirements regarding handling, storage and disposal of materials 2.4. Explain the safety, health and environmental requirements and procedures for sampling and testing 2.5. Identify the contingencies arising during testing and how to deal with them 2.6. Identify the extent of required statistical significance 2.7. Discuss the calibration requirements for equipment
3. Know how to maintain the integrity of the sample	3.1. Explain the impact of sampling method chosen upon source and sample 3.2. Discuss the principles of sampling and testing systems and techniques 3.3. Examine the factors influencing integrity of the sample 3.4. Identify the sources and methods of accessing relevant sampling standards
4. Know how to plan in order to develop a suitable testing plan	4.1. Explain the principles of planning 4.2. Identify the relevant test resources and their suitability 4.3. Identify the relevant testing methods appropriate to achieve objectives

UNIT 3.7C	**PLAN TO MAINTAIN PRODUCT INTEGRITY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to plan to maintain product integrity within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner will need to show they can operate in a range of conditions and demonstrate they can deal effectively with the following:

- Conditions relating to site access, possible contamination, equipment, safety factors, minimum disruption, disturbance and damage
- National procedures and operating standards
- Disposing of the sample correctly in relation to safety, health and environmental standard procedures
- Resources in relation to staff, equipment, materials and time
- Conditions of the test environment, test criteria and safety factors
- Qualitative and quantitative requirements of the customer

As the learner carries out their work activity, they will be able to keep the following records as practical evidence. They must:

- Produce three separate sampling or testing plans for three different processes, supported by written documentation including the specification for sampling or testing plans and their related method statements which identifies particular features concerning conditions, safety requirements, accessibility and dealing with contingencies including different sources, types and ranges of features. *(Documentary evidence could include selected Environmental Agency standards, record sheets, calibration documents, COSHH data sheets and risk assessments, standard operating procedures, log books and request forms).*

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking “Unit 3.7k – How to Plan to Maintain Product Integrity within Processing Industries Environments.”
- The assumption is made that the learner undertaking this unit will be an experienced operator / technician, developing and seeking recognition of their competence.

Information on use of Assessment Context

This unit is for those with responsibility for the detailed planning of sampling and testing procedures which have to be produced as a result of the initial technical plan. This overall technical plan may have been produced by a different person. It describes competences involved in implementing the technical components of the plan. It is designed for technical experts inside the organisation who devise specifications and procedures to be followed when conducting sampling and testing.

Sampling and testing procedures may be developed, adapted from existing procedures and standards or existing procedures assessed for their suitability and adopted unchanged.

Customers for the plans can be either external to the organisation or internal, e.g. other departments within the organisation.

Possible contexts in which these competences could be used include:
- Establishing a procedure for sampling effluent levels
- Developing procedures for where and how materials will be tested for strength
- Selecting test procedures to apply to new materials being prepared for an external customer

The following terms have a specific meaning in this unit:

Contingencies - To include equipment failure; delays; limitations to access; changes in variables affecting sample condition; safety and environmental changes.

Materials 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:
Could include the following:
- Quality assurance testing during production
- Water moisture content testing
- On-site sample

Sampling plan:
Contains all relevant information. Could include:
- Conditions
- Sampling method
- Access
- Location
- Timing
- Frequency
- Duration
- Recording methods

Testing request:
Could 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. Could include:
- Calibration of equipment
- Testing method
- Cleanliness
- Environment
- Time
- Acceptable variations
- Recording methods

Equipment - PPE to be specified, when necessary. Sampling equipment as specified within the specification.

Problems - These can relate to either materials, equipment, personnel, 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, but is not limited to:

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

Risk assessment - To include hazardous materials and contamination.

Waste materials - To include off specification product and waste materials.

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

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to plan so that a representative sample is obtained	1.1. Accurately define the characteristics of a representative sample 1.2. Decide the sampling points and frequency of sample taking in order to provide a representative sample
2. Be able to take account of the work environment when planning for sampling, to ensure safe working practices	2.1. Accurately assess the appropriateness and accessibility of the sampling site 2.2. Identify hazards and accurately assess risks 2.3. Make plans to deal with contingencies during sample taking
3. Be able to develop a fit for purpose sampling procedure	3.1. Identify appropriate sampling procedures and incorporate into testing plan 3.2. Incorporate the procedures for maintaining the integrity of the sample into the plan 3.3. Ensure sampling methodology meets customer requirements
4. Be able to establish the conditions for sampling and testing	4.1. Define the conditions under which the sample is to be obtained 4.2. Accurately quantify conditions for testing 4.3. Define a system for correct disposal of waste materials
5. Be able to identify the test requirements to achieve the objectives of the test	5.1. Define properties to be tested for 5.2. Ensure sample conforms with test requirements
6. Be able to identify the correct resources for testing	6.1. Identify and specify appropriate equipment 6.2. Accurately quantify resource requirements for testing
7. Be able to develop a detailed testing plan that contains all the relevant information	7.1. Ensure testing plan contains all relevant information in a form usable by others 7.2. Define within the testing plan the system for correct disposal of sample in accordance with safe operating procedures 7.3. Ensure testing plan includes procedures to deal with contingencies during testing 7.4. Ensure testing methodology meets customer requirements

UNIT 3.9K	**HOW TO ALLOCATE PERSONNEL TO MAINTAIN PROCESSING WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**30**

Unit Overview

This unit addresses the knowledge required to allocate personnel to maintain 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 in a supervisory / management role, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

To allocate work is to give teams and individual's responsibility for tasks which should achieve agreed work objectives.

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

Feedback on performance is the information to give to others on how well they are performing against the objectives which have been agreed.

Objectives are clearly defined results which need to be achieved which are specific, measurable, agreed with others, realistic and within time constraints.

Organisational constraints include organisational policies, objectives, level of resources which limit their actions and decisions.

Plans are documents or spoken agreements which describe the work to be carried out, when, by whom, to what standard and with what resources, in the order that requirements and objectives can be met.

Schedules Documents show the work to be done, when and sometimes by whom.

Team members are the people who work with the learner as part of a functional or project team; team members may report to the learner either as their line/shift manager/foreman, or as the manager / foreman in charge of a specific process/ activity /project on which they are working.

Performance is how individuals and /or team members perform in relation to achievement of objectives.

Monitor is the method used to compare actual with planned performance.

Work schedule is the set of instructions which describe the work to be carried out, and the objectives that need to be achieved.

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

Problems can relate to either personnel, materials, equipment, 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 extra personnel, other assistance or shutdown, where appropriate.

Documentation includes that relating to allocation of personnel, and any other relevant documentation.

Communication includes either written, spoken and/or electronic.

Health, safety and environmental legislation include 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 plan the work of teams and individuals	1.1. Explain the meaning of terms used in work schedules 1.2. Describe the objectives which need to be achieved and their importance 1.3. Explain the importance of confirming that individuals and team members agree and understand the plans and schedules 1.4. Identify how to allocate work taking into account individual's/ team member's abilities 1.5. Explain the importance of ensuring plans and schedules cover all personnel 1.6. Describe what organisational constraints there are and how they may affect the plans and schedules 1.7. Define the importance of communication and keeping others informed during the operation
2. Know how to provide feedback when necessary for teams and individuals	2.1. Describe the methods of providing feedback 2.2. Explain the importance of providing constructive feedback
3. Know how to ensure planned process objectives are achieved	3.1. Assess the methods of monitoring individuals and teams members performance 3.2. Explain the importance of comparing actual performance against planned performance 3.3. Identify what corrective action to take to meet objectives 3.4. Explain why it is important to complete documentation clearly and accurately
4. Know how to identify and deal with problems	4.1. Identify the types of problems that can occur in the planning stage 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 maintain safety and security while working	5.1. Identify circumstances in which it may be important to observe security/confidentiality 5.2. Describe what personal protective equipment to use and why 5.3. Explain own personal responsibilities with regard to health, safety and environment

UNIT 3.9C	**ALLOCATE PERSONNEL TO MAINTAIN PROCESSING WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**4**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**6**

Unit Overview

This unit addresses the skills required to allocate personnel to maintain processing within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should:

- Demonstrate performance covering as much of the assessment context as possible within a given period of time
- Describe how to complete those activities specified in the assessment context but not demonstrated practically

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.9k – How to Allocate Personnel to Maintain Processing within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be in a supervisory / management role, developing and seeking recognition of their competence.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

To allocate work is to give teams and individual's responsibility for tasks which should achieve agreed work objectives.

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

Feedback on performance is the information to give to others on how well they are performing against the objectives which have been agreed.

Objectives are clearly defined results which need to be achieved which are specific, measurable, agreed with others, realistic and within time constraints.

Organisational constraints include organisational policies, objectives, level of resources which limit the learner's actions and decisions.

Plans are documents or spoken agreements which describe the work to be carried out, when, by whom, to what standard and with what resources, in order that requirements and objectives can be met.

Schedules Documents show the work to be done, when and sometimes by whom.

Team members are the people who work with the learner as part of a functional or project team; team members may report to the learner either as their line/shift manager/foreman, or as the manager / foreman in charge of a specific process/ activity /project on which they are working.

Performance is how individuals and /or team members perform in relation to achievement of objectives.

Monitor is the method used to compare actual with planned performance.

Work schedule is the set of instructions which describe the work to be carried out, and the objectives that need to be achieved.

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

Problems can relate to either personnel, materials, equipment, 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 extra personnel, other assistance or shutdown, where appropriate

Documentation includes that relating to allocation of personnel, and any other relevant documentation.

Communication includes either written, spoken and/or electronic.

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

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Be able to plan the work of teams and individuals	1.1. Allocate work taking into account team members and/or individuals abilities 1.2. Ensure the plans and schedules cover all relevant personnel 1.3. Ensure plans and schedules are realistic and achievable within organisational constraints 1.4. Communicate, when required, with relevant personnel 1.5. Complete any required documentation accurately and clearly
2. Be able to provide feedback when necessary for teams and individuals	2.1. Confirm that all team members and/or individuals agree with and understand the plans and schedules 2.2. Provide feedback to individuals and/or team members when appropriate
3. Be able to ensure planned process objectives are achieved	3.1. Check that the required work schedule/objectives have been obtained and that they are clear and complete 3.2. Monitor actual performance 3.3. Assess the performance against agreed plans and schedules 3.4. Take corrective action when necessary to ensure objectives are met 3.5. Ensure that the relevant documentation is completed accurately and clearly
4. Be able to deal with problems	4.1. Deal promptly with any problems that occur in the planning stage of the operation 4.2. Deal promptly with any problems that arise which may affect the achievement of objectives 4.3. Inform the appropriate person of any problems which cannot be solved and/or are outside the limits of responsibility
5. Be able to maintain safety and security while working	5.1. When appropriate, wear PPE 5.2. Follow safe working procedures at all times 5.3. Ensure that security and confidentiality is observed when necessary

UNIT 3.12K	**HOW TO ENABLE INDIVIDUAL LEARNING THROUGH COACHING WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to enable individual learning through coaching 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, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Learning needs / objectives - An individual's and / or organisation's needs and learning objectives

Learning outcome/s - That which an individual gains from the process

Assessment methods - To include appropriate methods for checking learner's progress

Coaching - The method where the primary source of teaching is by demonstration. To include how to match coaching opportunities with individual learning needs. How to sequence and pace the information for individual learners

Feedback - The information that is given to learners to assess their progress

Documentation - Including that relating to learning, and any other relevant documentation

Responsibility - To be in charge of a certain operation, and accept and confirm that responsibility

Confidentiality - Only providing information to those who are authorised to have it

Communication - May include spoken, written and / or electronic

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to assess the needs of learners	1.1. Explain how to identify individual learning needs 1.2. Identify how to recognise the things that are likely to prevent learning and how to overcome them
2. Know how to plan for the delivery of coaching activities	2.1. Describe how to structure learning activities 2.2. Indicate how to choose and prepare appropriate materials, including technology-based materials 2.3. Explain how to make sure that everyone acts in line with health, safety and environmental protection legislation and best practice
3. Know how to maximise learning opportunities through coaching	3.1. Explain how to identify and use different learning opportunities 3.2. Discuss how to match coaching opportunities to individual learning needs and objectives 3.3. Explain the separate areas of coaching which encourage learning 3.4. Describe which types of learning are best achieved and supported through coaching
4. Know how to use coaching techniques appropriate to the learner	4.1. Explain the different learning styles and how they affect learning 4.2. Identify language that is appropriate to the individual learner 4.3. Describe techniques that can be used to put learners at their ease
5. Know how to monitor and support learners to facilitate effective learning	5.1. Explain how to encourage learners to recognise their own achievements 5.2. State how to check learners understanding and progress 5.3. Describe how to identify the opportunities available for learners to apply their learning
6. Know how to keep up to date with current developments in coaching	6.1. Identify how to analyse and use developments in learning and new ways of delivery, including technology-based learning

UNIT 3.12C	**ENABLE INDIVIDUAL LEARNING THROUGH COACHING WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to enable individual learning through coaching within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should produce records for two individual learners which identify the support given through coaching. It is expected that these will show how the learner:

- Identified individual needs and learning styles.
- Chose a style of coaching which meets the learning objectives of the organisation.
- Analysed the skills needed and the order they need to be learned in.
- Regularly checked that learners are making progress towards learning outcomes.
- Altered coaching in the light of learners' progress and feedback.
- Identified anything that prevents learning and reviewed this with learners.
- Gave learners the opportunities to practice skills, apply their knowledge and get experience in a structured way.
- Considered using technology-based support for learners including e-support.
- Identified opportunities for learners to achieve agreed learning objectives.
- Identified opportunities to use different learning opportunities.

Evidence should also include one record of an observation for a coaching session with an individual learner by an Assessor or a witness (this witness must have been agreed by the Assessor prior to the observation taking place). It is expected that this will show how the learner:

- Coached in a manner and speed which is appropriate to learners.
- Gave learners positive feedback on the learning process and progress towards meeting their agreed objectives.
- Gave learners feedback on any alterations to the coaching.
- Reviewed with the learners anything which prevents their learning.
- Identified opportunities to use different learning opportunities and agreed action with learners.
- Gave learners clear and accurate information on the resources available to help them apply their learning.
- Gave learners positive feedback on the learning experiences and the outcomes achieved.
- Explained to learners the ongoing support that is available to them

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.12k – How to Enable Individual Learning through Coaching within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced operator, developing and seeking recognition of their competence.

Information on use of Assessment Context

The following terms have a specific meaning in this unit:

Learning needs / objectives - An individual's and / or organisation's needs and learning objectives.

Learning outcome/s - That which an individual gains from the process.

Assessment methods - To include appropriate methods for checking learner's progress.

Coaching - The method where the primary source of teaching is by demonstration. To include how to match coaching opportunities with individual learning needs. How to sequence and pace the information for individual learners.

Feedback - The information that is given to learners to assess their progress.

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

Responsibility - To be in charge of a certain operation, and accept and confirm that responsibility.

Confidentiality - Only providing information to those who are authorised to have it.

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

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to assess the needs of learners	1.1. Identify individual needs and learning styles 1.2. Choose a style of coaching which meets the learning objectives of the organisation 1.3. Identify anything that prevents learning and review this with learners
2. Be able to plan for successful learning outcomes	2.1. Identify and agree different learning opportunities with learners 2.2. Identify opportunities for learners to achieve agreed learning objectives
3. Be able to use coaching techniques appropriate to the learner	3.1. Analyse the skills needed and the order they need to be learned in 3.2. Coach in a manner and at a speed which is appropriate to learners 3.3. Give learners opportunities to practise skills, apply their knowledge and get experience in a structured way
4. Be able to monitor and adjust the delivery of coaching, if this is required	4.1. Regularly check that learners are making progress towards learning outcomes 4.2. Alter coaching in the light of learners progress and feedback
5. Be able to support and encourage learners	5.1. Give learners positive feedback on their learning outcomes and progress 5.2. Give learners clear and accurate information on the resources available to help them apply their learning 5.3. Consider using technology-based support for learners, including e-support 5.4. Explain to learners the ongoing support that is available to them

UNIT 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 3.13C	**CONDUCT AN ASSESSMENT OF RISKS IN THE WORKPLACE WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
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 processing industries environments.

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 responsible persons from the list below:

1. Management associated with the examined activities
2. Employees associated with the examined activities
3. Decision makers
4. Union representatives
5. Staff representatives

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 workplace 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.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.13k – How to Conduct an Assessment of Risks in the Workplace within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their competence.

Information on use of Assessment Context

This unit addresses the competence 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 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.

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. Be able to prepare to carry out an assessment of risks	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
2. Be able to ensure compliance with industry and legal requirements	2.1. Confirm that industry standards and all other reasonable precautions are in place 2.2. Review all legal requirements that are appropriate to their workplace and working practices to ensure effective control measures are in place
3. Be able to identify hazards and where they are likely to occur in the workplace	3.1. Ensure their investigation fully identifies those areas in the 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. Be able to 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. Be able to 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 workplace procedures
6. Be able to 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. Be able to work safely, involving others when necessary	7.1. Recognise own limitations and seek expert advice and guidance on risk assessment when appropriate 7.2. Work safely at all times
8. Be able to take account of existing and previous workplace practices when analysing potential risks	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. Be able to monitor the effects of the risk assessment and review it if necessary	9.1. Investigate the action taken as a result of their recommendations specified in the latest risk assessment 9.2. Make changes to their risk/s assessment in line with the review 9.3. Inform, promptly, everyone affected by the changes

UNIT 3.14K	**HOW TO IDENTIFY IMPROVEMENTS TO ENERGY EFFICIENCY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**26**

Unit Overview

This unit addresses the knowledge required to identify improvements to energy efficiency 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 is about helping the organisation improve its energy efficiency. It covers both identifying opportunities for improvements and making appropriate recommendations.

In order to identify opportunities to improve energy efficiency, the learner needs to review opportunities for improvements in energy efficiency regularly. These opportunities may arise from changes in operational systems and activities, changes in the use of resources, or developments in products, services, technology and best practice. The learner needs to identify external programmes which can support the organisation's energy efficiency initiatives. The learner also needs to encourage individuals and teams to take an active part in these initiatives.

In order to recommend improvements to energy efficiency, the learner needs to evaluate the opportunities from developments in technology. Energy sources and best practice offer potential improvements to the organisation's systems and activities. The learner needs to make recommendations to individuals and teams based on their evaluations, seeking specialist advice where necessary.

The following terms have a specific meaning in this unit:

Best Practice Programme - The Department of the Environment's programme of promoting best practice in energy efficiency.

Energy sources - All sources of energy, such as electricity, gas, oil, solid fuels, nuclear and renewable sources.

Environment - The physical conditions inside and outside the organisation.

The organisation - The organisation with which the learner is working to improve its energy efficiency (this may be different from the organisation which employs the learner).

The learner's organisation - The organisation which employs the learner (this may be different from the organisation with which the learner is working to improve its efficiency).

Resources - The money, people, equipment, materials, energy, and premises which the learner has at their disposal.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know how to use energy efficiently within the workplace	1.1. Explain how to select and use resources which optimise energy use 1.2. Identify the principle energy recycling opportunities 1.3. Explain how to identify opportunities for improved energy efficiency 1.4. Describe the range of energy efficiency improvements which can be made 1.5. Identify the range of available and relevant suppliers, tariffs and fuel costs
2. Know how to evaluate energy efficiency improvements within the organisation	2.1. Describe how to assess the advantages and disadvantages of alternative courses of action 2.2. Describe how to assess the applicability of technological advances in the field of energy management
3. Know how to keep up to date with new developments that may improve energy efficiency within the organisation	3.1. Identify the main sources of information on developments in energy efficiency technology and best practice and how to make use of them 3.2. Identify the range of new markets, products, services and technological innovations relevant to energy efficiency 3.3. Identify the range of external programmes which may support energy efficiency initiatives 3.4. Identify the principal developments and advances in energy efficiency best practice 3.5. Identify the range of energy sources and their features and benefits 3.6. Describe the principle of sustainable development and how to work towards it
4. Know how to communicate and include others when considering improvements to energy efficiency	4.1. Explain the principles and processes of effective communication and how to apply to them 4.2. Explain how to present advice to individuals and teams 4.3. Identify when further advice is necessary and who to go to 4.4. Explain how to encourage individuals and teams to identify energy efficiency improvements
5. Know how to take account of operational procedures and methods of working when identifying energy efficiency measures	5.1. Describe the operational systems and practices in the organisation 5.2. Explain the organisational requirements for providing advice and recommendations 5.3. Explain the organisational activities, systems and resources that have an impact on energy efficiency

UNIT 3.14C	**IDENTIFY IMPROVEMENTS TO ENERGY EFFICIENCY WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**3**
GUIDED LEARNING HOURS	**8**

Unit Overview

This unit addresses the skills required to identify improvements to energy efficiency within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to show that they have:

Reviewed at least two of the following types of resources:
- Money
- People
- Premises
- Equipment
- Materials
- Energy

Identified at least two of the following types of opportunities:
- Products
- Services
- Technological innovation
- Design and modification of systems
- Equipment and buildings
- Recycling
- Insulation

Identified at least two of the following types of external programmes
- Grant aid
- Environmental measures
- Local
- National and EU conservation initiatives
- Best Practice Programme

Evaluated at least two of the following types of advantages and disadvantages
- Safety
- Cost
- Reliability
- Environment
- Quality

Learners must, however, convince the assessor that they have the necessary knowledge, understanding and skills to be able to perform competently in respect of all types of advantages and disadvantages, listed above.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking "Unit 3.14k – How to Identify Improvements to Energy Efficiency within Processing Industries Environments."
- The assumption is made that the learner undertaking this unit will be an experienced employee, developing and seeking recognition of their competence.

Information on use of Assessment Context

This unit is about helping the organisation improve its energy efficiency. It covers both identifying opportunities for improvements and making appropriate recommendations.

In order to identify opportunities to improve energy efficiency, the learner needs to review opportunities for improvements in energy efficiency regularly. These opportunities may arise from changes in operational systems and activities, changes in the use of resources, or developments in products, services, technology and best practice. The learner needs to identify external programmes which can support the organisation's energy efficiency initiatives. The learner also needs to encourage individuals and teams to take an active part in these initiatives.

In order to recommend improvements to energy efficiency, the learner needs to evaluate the opportunities from developments in technology. Energy sources and best practice offer potential improvements to the organisation's systems and activities. The learner needs to make recommendations to individuals and teams based on their evaluations, seeking specialist advice where necessary.

The following terms have a specific meaning in this unit:

Best Practice Programme - The Department of the Environment's programme of promoting best practice in energy efficiency.

Energy sources - All sources of energy, such as electricity, gas, oil, solid fuels, nuclear and renewable sources.

Environment - The physical conditions inside and outside the organisation.

The organisation - The organisation with which the learner is working to improve its energy efficiency (this may be different from the organisation which employs the learner).

The learner's organisation - The organisation which employs the learner (this may be different from the organisation with which the learner is working to improve its efficiency).

Resources - The money, people, equipment, materials, energy, and premises which the learner has at their disposal.

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to use energy efficiently within the workplace	1.1. Select and use resources which optimise the use of energy throughout the organisation 1.2. Identify opportunities for recycling energy used for operational activities
2. Be able to identify and evaluate energy efficiency improvements within the organisation	2.1. Regularly review resources, systems and operational activities to identify opportunities for improved energy efficiency 2.2. Accurately evaluate the advantages and disadvantages to the organisation of possible energy efficiency improvements
3. Be able to keep up to date with new developments that may improve energy efficiency within the organisation	3.1. Regularly identify new markets, products, services and technological innovations which offer improvements in energy efficiency 3.2. Consistently identify developments and advances in energy efficiency best practice which are relevant to the organisation 3.3. Identify external programmes which support the organisation's energy efficiency initiatives
4. Be able to assess the impact and suitability of energy efficiency measures	4.1. Accurately evaluate alternative energy sources and suppliers for cost savings and energy efficiency 4.2. Assess advances in technology for their applicability to the organisation's systems and activities 4.3. Make recommendations based on their evaluations in line with organisational requirements
5. Be able to include others within the organisation when improving energy efficiency	5.1. Encourage individuals and teams to identify opportunities which improve energy efficiency and contribute to a sustainable environment 5.2. Seek further advice from appropriate people, where necessary

UNIT 3.15K	**HOW TO ENABLE LEARNING THROUGH DEMONSTRATIONS AND INSTRUCTION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**18**

Unit Overview

This unit addresses the knowledge required to enable learning through demonstrations and instruction within processing industries environments.

Assessment Guidance and Evidence Requirements

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.

Evidence must include ONE Record relating to the activity to be demonstrated (in unit 3.15c). It is expected that this will show how the learner:

- Decided on the sequence of the demonstration.
- Ensured that the demonstration was accurate and realistic.
- Identified which learning outcomes would be achieved.
- Ensured a safe environment for the demonstration and allowed all learners to see the demonstration clearly.

In preparing the record the learner should consider the following:

- Which types of learning are best achieved and supported through demonstrations.
- How to choose between demonstration and instruction as learning methods.
- How to identify individual learning needs.
- Which factors are likely to prevent learning and how to overcome them.
- How to choose and prepare appropriate materials, including technology-based materials.
- Which types of learning are best achieved and supported through instruction.
- How to make sure everybody acts in line with health, safety and environmental protection legislation and best practice.
- How to analyse and use developments in learning and new ways of delivery, including technology-based learning.

Assessment Guidance

- 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, developing and seeking recognition of their knowledge.

Information on use of Assessment Context

The unit is appropriate for people involved in activities such as:

- Demonstrating how equipment is used
- Showing a learner how to do something
- Giving learners instructions on what to do or how to carry out a particular activity
- Deciding when they should use demonstration or instruction to encourage learning
- Reviewing the potential use of technology-based learning
- Checking on the progress of learners
- Giving feedback to learners

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Know when to choose between demonstration and instruction as appropriate teaching methods	1.1. Identify which types of learning are best achieved and supported through: • Instruction • Demonstration 1.2. Explain how to choose between demonstration and instruction as learning methods 1.3. Explain the separate areas of demonstrations and instructional techniques which encourage learning
2. Know how to assess the needs of learners when planning demonstrations or instruction	2.1. Explain how to identify individual learning needs 2.2. Identify which factors are likely to prevent learning and how to overcome them
3. Know how to plan a demonstration or instruction session to maximise learning	3.1. Describe how to structure demonstrations and instruction sessions 3.2. Explain how to choose from a range of demonstration techniques 3.3. Explain how to put information in order and decide whether the language they will be using is appropriate for the learners 3.4. Explain how to choose and prepare appropriate materials, including technology-based materials 3.5. Explain how to identify and use different learning opportunities
4. Know how to use interaction with the learner to maximise learning	4.1. Describe how to put learners at their ease and encourage them to take part 4.2. List ways to check learners' understanding and progress
5. Know how to keep up to date with the latest developments in learning	5.1. Explain how to analyse and use developments in learning and new ways of delivery, including technology-based learning
6. Know how to follow organisational procedures when enabling learning through demonstrations or instruction	6.1. Explain how to make sure everybody acts in line with health, safety and environmental protection legislation and best practice

UNIT 3.15C	**ENABLE LEARNING THROUGH DEMONSTRATIONS AND INSTRUCTION WITHIN PROCESSING INDUSTRIES ENVIRONMENTS**
LEVEL	**3**
CREDIT VALUE	**2**
GUIDED LEARNING HOURS	**4**

Unit Overview

This unit addresses the skills required to enable learning through demonstrations and instruction within processing industries environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

Evidence must include records of TWO Observations by an Assessor or by a Witness (This witness must have been agreed by the Assessor prior to the observation taking place). These must cover at least one demonstration and one instruction or a combination of both.

The observation MUST include the following evidence of how the learner:

- Structured the demonstration so the learner got the most out of it.
- Encouraged learners to ask questions and get explanations at appropriate stages in the demonstration.
- Gave learners the opportunities to practice the skill being demonstrated.
- Gave them positive feedback.
- Reinforced learning by repeating demonstration.
- Responded to the needs of learners during the demonstration.
- Reduced distractions and disruptions as much as possible.
- Matched instruction to the needs of the learners.
- Ensured that the manner, level and speed of the instruction encouraged learners to take part.
- Regularly checked that learners understood and adapted instruction as appropriate.
- Gave learners positive feedback on the learning experience and the outcomes achieved.
- Identified anything that prevented learning and reviewed this with the learners.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements set out in the Cogent Assessment Strategy.
- This unit should not be taken prior to taking “Unit 3.15k – How to Enable Learning through Demonstrations and Instruction within Processing Industries Environments.”
- The assumption is made that the learner undertaking this unit will be an experienced operator, developing and seeking recognition of their competence.

Information on use of Assessment Context

The unit is appropriate for people involved in activities such as:

- Demonstrating how equipment is used
- Showing a learner how to do something
- Giving learners instructions on what to do or how to carry out a particular activity
- Deciding when they should use demonstration or instruction to encourage learning
- Reviewing the potential use of technology-based learning
- Checking on the progress of learners
- Giving feedback to learners

Learning Outcome and Assessment Criteria

Learning outcomes **The learner will:**	**Assessment criteria** **The learner can:**
1. Be able to plan demonstrations and instruction to maximise learning outcomes	1.1. Identify which learning outcomes will be achieved through instruction 1.2. Base the demonstration on an analysis of the skills needed and the order they must be learned in 1.3. Match instruction to the needs of the learners 1.4. Structure the demonstration so the learner can get the most out of it
2. Be able to plan the demonstration or instruction to maximise the effectiveness of the learning environment	2.1. Ensure that demonstrations take place in a safe environment and allow learners to see the demonstration clearly 2.2. Reduce distractions and disruptions as much as possible 2.3. Ensure that the demonstration is accurate and realistic
3. Be able to facilitate learner participation and involvement when giving demonstrations or instruction	3.1. Ensure that the manner, level and speed of the instruction encourages learners to take part 3.2. Respond to the needs of learners during the demonstration 3.3. Encourage learners to ask questions and get explanation at appropriate stages in the demonstration 3.4. Give learners the opportunities to practise the skill being demonstrated and give them positive feedback
4. Be able to amend demonstrations or instruction to match the needs of learners	4.1. Regularly check that learners understand and adapt instruction as appropriate 4.2. Give extra demonstrations of the skills being taught to reinforce learning
5. Be able to provide positive feedback and assess the outcomes of the learning process	5.1. Give learners positive feedback on the learning experience and the outcomes achieved 5.2. Identify anything that prevents learning and review this with the learners