Level 2 Diploma in Processing Operations: Hydrocarbons (0640-23)

Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (0640-33)

Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (Control Room) (0640-34)

January 2013 Version 1.2
## Qualifications at a glance

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<th>Process Engineering</th>
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<td>Added NVQ to the Level 3 qualification titles, formatted the structure tables, re-worded the structure description for 0640-23, amended information under Assessor and Internal Quality Assurer in section two and amended the title of unit 355</td>
<td>Qualifications at a glance, Introduction, Centre requirements and Units</td>
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<td>How to Remotely Control Integrated Process Systems Within a Processing Industries Hydrocarbons Environment</td>
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1 Introduction

This document tells you what you need to do to deliver the qualifications:

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<tr>
<th>Area</th>
<th>Description</th>
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<tbody>
<tr>
<td>Who are the qualifications for?</td>
<td>For learners who work or want to work in various roles in the oil and gas sector.</td>
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<tr>
<td>What do the qualifications cover?</td>
<td>They allow learners to learn, develop and practise the skills required for employment and/or career progression in the oil and gas sector. At Level 2, the learner will likely be a process operator carrying out various routine tasks. The Level 3 qualifications are aimed at more experienced technicians or control room operators that have greater autonomy in their role.</td>
</tr>
<tr>
<td>What opportunities for progression are there?</td>
<td>Learners studying the Level 2 qualifications may wish to progress to the Level 3 qualifications.</td>
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Structure

To achieve the Level 2 Diploma in Processing Operations: Hydrocarbons (0640-23), learners must achieve 43 credits from units (101 - 102, 227 – 234, 335 - 338).

To achieve the Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (0640-33), learners must achieve 56 Credits from (339 - 352).

To achieve the Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (Control Room) (0640-34), learners must achieve 56 credits from (339-344, 353 - 360).

Level 2 Diploma in Processing Operations: Hydrocarbons

<table>
<thead>
<tr>
<th>Unit accreditation number</th>
<th>City &amp; Guilds unit number</th>
<th>Unit title</th>
<th>Credit value</th>
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**Level 3 NVQ Diploma in Processing Operations: Hydrocarbons**

**Mandatory**

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<tr>
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**Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (Control Room)**

**Mandatory**

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<td>Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries Hydrocarbons Environment</td>
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2 Centre requirements

Approval

Centres already offering City & Guilds qualifications
Centres that have offered the following qualifications will be automatically approved to deliver Process Operations: Hydrocarbons and Process Operations: Hydrocarbons (Control Room) qualifications:

- 0667-12 Level 2 NVQ in Processing Operations – Hydrocarbons
- 0667-13 Level 3 NVQ in Processing Operations - Hydrocarbons
- 0667-14 Level 3 NVQ in Processing Operations - Hydrocarbons (Control Room)

Centres not already offering City & Guilds qualifications
To offer these qualifications, new centres will need to gain both centre and qualification approval. Please refer to the Centre Manual - Supporting Customer Excellence for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification[s] before designing a course programme.

Resource requirements

Physical resources and site agreements
The assessment methods used to assess the occupational competence of the learners should be valid, reliable, fair and applicable to real work in the normal day to day working environment.

Centre staffing
Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the areas for which they are delivering training and/or have experience of providing training. This knowledge must be above or to the same level as the training being delivered
- hold the Level 3 Qualification in Process Operations - hydrocarbons, or an equivalent qualification.
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal quality assurer, but cannot internally verify their own assessments.
Assessors and Internal Quality Assurer
Assessor/Internal Quality Assurer TAQA qualifications are valued as qualifications for centre staff, but they are not currently a requirement for the qualifications.

Continuing professional development (CPD)
Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training, assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

Learner entry requirements
City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that learners have the potential and opportunity to gain the qualifications successfully.

Age restrictions
City & Guilds cannot accept any registrations for learners under 16 as these qualifications are not approved for under 16s.
3 Delivering the qualification

Initial assessment and induction
An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs,
- support and guidance they may need when working towards their qualifications.
- any units they have already completed, or credit they have accumulated which is relevant to the qualifications.
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualification[s], their responsibilities as a learner, and the responsibilities of the centre. This information can be recorded on a learning contract.

Recording documents
Learners and centres may decide to use a paper-based or electronic method of recording evidence.

City & Guilds endorses several ePortfolio systems, including our own, Learning Assistant, an easy-to-use and secure online tool to support and evidence learners' progress towards achieving qualifications. Further details are available at: www.cityandguilds.com/eportfolios.

City & Guilds has developed a set of Recording forms including examples of completed forms, for new and existing centres to use as appropriate. Recording forms are available on the City & Guilds website.

Although new centres are expected to use these forms, centres may devise or customise alternative forms, which must be approved for use by the external verifier, before they are used by learners and assessors at the centre. Amendable (MS Word) versions of the forms are available on the City & Guilds website.
4 Assessment

Assessment of the qualification
Learners must:
- have a completed portfolio of evidence for each unit

Assessment strategy
The assessment strategy for these qualifications has been set by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers.

Please note: simulation is not always suitable for the qualifications within this sector. The Assessment Strategy defines where evidence from stimulation is acceptable, and in which contexts.

Please refer to the latest version of Cogent’s Assessment Strategy. The 12 August 2009 version can be found on the City & Guilds website www.cityandguilds.com (This version is the most recent version at August 2012).

Please contact Cogent for further detail, information and/ or latest version

Cogent SSC Limited
Unit 5
Mandarin Court
Centre Park
Warrington
WA1 1GG
Tel: 01925 515200
Fax: 01925 515240
www.cogent-ssc.com
5 Units

Availability of units

The following units can also be obtained from The Register of Regulated Qualifications:
http://register.ofqual.gov.uk/Unit

Below is a list of the learning outcomes for all the units. If you want to download a complete set of units, go to [website]

Structure of units

These units each have the following:
• City & Guilds reference number
• unit accreditation number
• title
• level
• credit value
• endorsement by a sector or other appropriate body
• information on assessment
• learning outcomes which are comprised of a number of assessment criteria
• notes for guidance.
# Unit 101

How to Establish and Maintain Effective Relationships with Others Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>R/601/7964</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level:</td>
<td>Level 1</td>
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<tr>
<td>Credit value:</td>
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<td>18</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

## Learning outcome

The learner will:

1. Know how to maintain effective working relationships

## Assessment criteria

The learner can:

1.1 Describe the requirements of workplace practices relating to other people

1.2 Describe the response to others to maintain effective working relationships

## Learning outcome

The learner will:

2. Know how to record and communicate information in the most suitable way

## Assessment criteria

The learner can:

2.1 Describe the workplace reporting procedures

2.2 Explain the importance of passing on information that is accurate and complete

2.3 Identify methods of passing on accurate and complete information
<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>3. Know how to deal with difficulties in maintaining effective working relationships</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>3.1 Describe appropriate responses when dealing with work related difficulties or breakdowns in relationships</td>
</tr>
<tr>
<td>3.2 Explain why information received sometimes needs to be clarified</td>
</tr>
<tr>
<td>3.3 Identify who to seek clarification from when communications cannot be clearly understood</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>4. Know how to minimise and deal with safety issues in the workplace</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>4.1 Explain how to use Safe Systems of Work processes to:</td>
</tr>
<tr>
<td>• identify hazards</td>
</tr>
<tr>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
</tr>
<tr>
<td>4.2 Describe the nature of work area hazards and ways to control and/or minimise risks</td>
</tr>
<tr>
<td>4.3 Explain the emergency procedures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>5. Know how to work to organisational and operational requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>5.1 Explain the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td>5.2 Explain how to interpret operational requirements</td>
</tr>
<tr>
<td>5.3 Explain where to obtain, and how to implement:</td>
</tr>
<tr>
<td>• operational policies</td>
</tr>
<tr>
<td>• procedures</td>
</tr>
<tr>
<td>• instructions</td>
</tr>
<tr>
<td>• codes of practice</td>
</tr>
<tr>
<td>• standards and schedules</td>
</tr>
</tbody>
</table>
Unit 101      How to Establish and Maintain Effective Relationships with Others Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an operator with basic experience who is seeking recognition of their knowledge.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• individual operation
• team operation
• consideration of H2S (hydrogen sulphide) and other toxic substances
• maintaining communication
• reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.

Other people should include, where appropriate:
• co-workers
• supervisors
• managers
• other company employees
• third parties
• visitors.
Situations must include, as appropriate:
- informal meetings
- formal meetings
- normal work situations
- team briefings
- contingency situations
- handovers.

Information must include:
- oral
- written
- visual.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Unit 102  Establish and Maintain Effective Relationships with Others Within a Processing Industries Hydrocarbons Environment

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<td>GLH:</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

### Learning outcome
The learner will:
1. Be able to react appropriately to others

### Assessment criteria
The learner can:
1.1 Promptly and willingly meet reasonable requests and queries from others
1.2 Respond to others to maintain effective working relationships

### Learning outcome
The learner will:
2. Be able to record and communicate information in the most suitable way

### Assessment criteria
The learner can:
2.1 Record relevant information accurately and legibly
2.2 Use a style of communication in both language and terminology, that is clear, concise and accurate
2.3 Use a style of communication that is suited to the workplace and the situation
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3. Be able to pass on accurate information clearly and concisely</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.1 Provide prompt, clear and accurate information to others</td>
</tr>
<tr>
<td></td>
<td>3.2 Relay accurate and complete information about current operational status to and from relevant personnel, at handover stage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4. Be able to deal with difficulties in maintaining effective working relationships</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.1 Offer additional support when others have difficulties and seek help where necessary</td>
</tr>
<tr>
<td></td>
<td>4.2 Seek clarification promptly when difficulties are experienced interpreting communications</td>
</tr>
<tr>
<td></td>
<td>4.3 Promptly report unresolved breakdowns in working relationships to an appropriate person</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tr>
<td></td>
<td>5. Be able to work to organisational and operational procedures</td>
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<table>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tbody>
<tr>
<td></td>
<td>5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
<tr>
<td></td>
<td>5.2 Follow procedures and act promptly, when dealing with communications</td>
</tr>
<tr>
<td></td>
<td>5.3 Leave the work area clean and free of hazards</td>
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</table>
Unit 102
Establish and Maintain Effective Relationships with Others Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an operator with basic experience who is seeking recognition of their skills.

This unit should not be taken prior to taking ‘How to Establish and Maintain Effective Relationships with Others Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Other people should include, where appropriate:
- co-workers
- supervisors
- managers
- other company employees
- third parties
- visitors.

Situations must include, as appropriate:
- informal meetings
- formal meetings
- normal work situations
- team briefings
- contingency situations
- handovers.

Information must include:
- oral
- written
- visual.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Unit 227

How to Contribute to Health and Safety Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>K/601/7954</th>
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</thead>
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<tr>
<td>GLH:</td>
<td>24</td>
</tr>
</tbody>
</table>

Endorsement by a sector or regulatory body:
This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome

The learner will:
1. Know how to use materials safely

Assessment criteria

The learner can:
1.1 Describe how to handle materials
1.2 Identify which materials are for disposal

Learning outcome

The learner will:
2. Know how to minimise safety issues in the workplace

Assessment criteria

The learner can:
2.1 Explain how to obtain and interpret information on safety
2.2 Identify how to access fire protection, first aid and survival equipment
2.3 Explain how to use Safe Systems of Work processes to:
   • identify hazards
   • mitigate or reduce risks to as low as reasonably practicable (ALARP)
2.4 Explain how to use safe lifting and handling techniques
### Learning outcome

The learner will:

3. Know the safety responsibilities attached to own job role

### Assessment criteria

The learner can:

3.1 Describe own responsibilities as they relate to:
   - Organisational Safety Policy
   - Classification, Packaging and Labelling of Dangerous Substances Regulations
   - Environmental Protection Act

### Learning outcome

The learner will:

4. Know how to work to organisational and operational requirements

### Assessment criteria

The learner can:

4.1 Explain how to select, use and care for Personal Protective Equipment (PPE)
4.2 Describe how to interpret operational requirements
4.3 Describe the implications of statutory and organisational requirements
4.4 Describe how to implement workplace reporting procedures
Unit 227  How to Contribute to Health and Safety Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Materials could include those that are:
- flammable
- toxic
- corrosive
- explosive
- cryogenic
- radioactive.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
## Unit 228
Contribute to Health and Safety Within a Processing Industries Hydrocarbons Environment

<table>
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<th>UAN:</th>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

### Learning outcome
The learner will:
1. Be able to use and monitor materials, tools and equipment

### Assessment criteria
The learner can:
1.1 Handle all materials, tools and equipment correctly
1.2 Identify and report unsafe equipment and potential danger

### Learning outcome
The learner will:
2. Be able to work with safety equipment

### Assessment criteria
The learner can:
2.1 Use fire protection, first aid and survival equipment
2.2 Position and use relevant safety equipment (including machine guards) safely and securely

### Learning outcome
The learner will:
3. Be able to deal with waste

### Assessment criteria
The learner can:
3.1 Identify packaged, labeled and transferred materials for disposal
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>Assesment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td>The learner can:</td>
</tr>
<tr>
<td>4. Be able to maintain pollution control measures</td>
<td>4.1 Monitor and control liquid and gas discharges from own area, to within prescribed limits</td>
</tr>
<tr>
<td></td>
<td>4.2 Identify and report unplanned liquid and gas discharges</td>
</tr>
<tr>
<td></td>
<td>5. Be able to work to organisational and operational requirements</td>
</tr>
<tr>
<td></td>
<td>5.1 Ensure that the area within own personal responsibility is maintained, clean and hazard free</td>
</tr>
<tr>
<td></td>
<td>5.2 Select and use the relevant Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td></td>
<td>5.3 Adhere to all procedures relevant to fire, accident and other emergency</td>
</tr>
<tr>
<td></td>
<td>5.4 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
</tbody>
</table>
Unit 228  Contribute to Health and Safety Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.
This unit should not be taken prior to taking ‘How to Contribute to Health and Safety Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Materials could include those that are:
- flammable
- toxic
- corrosive
- explosive
- cryogenic
- radioactive.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Unit 229  How to Contribute to the Control of Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

<table>
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<tr>
<th>UAN:</th>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

**Learning outcome**
The learner will:
1. Know how to initiate an emergency response

**Assessment criteria**
The learner can:
1.1 Explain the emergency procedures relevant to the workplace
1.2 Identify how to react appropriately
1.3 Identify who to contact in the event of an emergency situation

**Learning outcome**
The learner will:
2. Know how to respond to emergencies

**Assessment criteria**
The learner can:
2.1 Explain how the installation/site layout may impact on actions taken
2.2 Explain the principles and operation of fire and gas control systems
2.3 Explain the equipment and its function and operation
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td>3. Know the implications of actions taken in an emergency situation</td>
</tr>
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<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td>3.1 Explain the operation of and potential implications of emergency shutdown systems</td>
</tr>
<tr>
<td></td>
<td>3.2 Identify the effect and potential implications of loss of any utility and its reinstatement</td>
</tr>
<tr>
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<tr>
<td>Learning outcome</td>
<td></td>
</tr>
<tr>
<td>The learner will:</td>
<td>4. Know how to minimise safety issues in the workplace</td>
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<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
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<tr>
<td>Learning outcome</td>
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</tr>
<tr>
<td>The learner will:</td>
<td>5. Know how to work to organisational and operational requirements</td>
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</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td>5.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td></td>
<td>5.2 Explain how to interpret operational requirements</td>
</tr>
<tr>
<td></td>
<td>5.3 Explain the implications of statutory and organisational requirements</td>
</tr>
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</table>
Unit 229  How to Contribute to the Control of Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• individual operation
• team operation
• consideration of H2S (hydrogen sulphide) and other toxic substances
• maintaining communication
• reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.

Personal Protective Equipment (PPE) should include:
• sight/hearing protection
• coveralls
• gloves
• footwear
• hard hats
• respirators.
Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Emergencies include all types of critical situations. Emergencies could be those relating to:
- people
- plant
- environment.

Reacting appropriately to an emergency situation may include:
- make safe
- isolate
- shutdown
- evacuate the work area.
Unit 230
Contribute to the Control of Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>J/601/7959</th>
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<td>Credit value:</td>
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<td>GLH:</td>
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<td>Endorsement by a sector or regulatory body:</td>
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</tbody>
</table>

**Learning outcome**
The learner will:
1. Be able to identify and respond to emergency situations

**Assessment criteria**
The learner can:
1.1 Identify developing and existing emergency situations
1.2 Take action to make the situation safe
1.3 Contact the correct people in the event of an emergency

**Learning outcome**
The learner will:
2. Be able to alert relevant others to the situation

**Assessment criteria**
The learner can:
2.1 Activate all relevant alarms and take actions appropriate to the situation
2.2 Report the emergency situation correctly
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>3. Be able to minimise risks</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Learning outcome</td>
<td>Assessment criteria</td>
</tr>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>4. Be able to monitor the situation</td>
<td></td>
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<td></td>
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<tr>
<td>Learning outcome</td>
<td>Assessment criteria</td>
</tr>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>5. Be able to work to organisational and operational procedures</td>
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</tbody>
</table>

### Learning outcome

The learner will:
3. Be able to minimise risks

**Assessment criteria**

The learner can:
3.1 Minimise risks to personnel, process, plant and equipment
3.2 Liaise with relevant others to ensure that risks are kept to a minimum
3.3 Ensure that others know their role when dealing with an emergency

### Learning outcome

The learner will:
4. Be able to monitor the situation

**Assessment criteria**

The learner can:
4.1 Monitor the situation
4.2 Inform relevant personnel if the situation changes

### Learning outcome

The learner will:
5. Be able to work to organisational and operational procedures

**Assessment criteria**

The learner can:
5.1 React appropriately to information received
5.2 Take part in drills and exercises
5.3 Work safely in accordance with operational requirements and associated Safe Systems of Work
Unit 230  Contribute to the Control of Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

This unit should not be taken prior to taking ‘How to Contribute to the Control of Emergencies and Critical Situations Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
- hazard Identification
- risk Assessment
- permit to work
- any other associated systems.

Emergencies could be those relating to:
- people
- plant
- Environment.

Emergencies include all types of critical situations.
Unit 231  How to Prepare and Start Up Process Systems Within a Processing Industries Hydrocarbons Environment

UAN: M/601/7972
Level: Level 2
Credit value: 3
GLH: 26
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know the plant environment and layout

Assessment criteria
The learner can:
1.1 Explain how to access and interpret operational instructions
1.2 Explain the plant layout and its connection with other systems

Learning outcome
The learner will:
2. Know who to liaise with when starting up process systems

Assessment criteria
The learner can:
2.1 Identify who to deal with when starting up processes

Learning outcome
The learner will:
3. Know how to maintain the correct plant conditions

Assessment criteria
The learner can:
3.1 Explain how to achieve correct operating conditions
3.2 Explain how to achieve optimum processing
<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>4. Know how to minimise and deal with faults and hazards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>4.1 Explain the appropriate action to take on identification of faults</td>
</tr>
<tr>
<td>4.2 Identify work area hazards that affect process systems</td>
</tr>
<tr>
<td>4.3 Identify who to inform if a hazard is identified</td>
</tr>
<tr>
<td>4.4 Explain how to use Safe Systems of Work processes to:</td>
</tr>
<tr>
<td>• identify hazards</td>
</tr>
<tr>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>5. Know how to work to organisational and operational procedures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>5.1 Explain how to work with and within the Safe Systems of Work system</td>
</tr>
<tr>
<td>5.2 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td>5.3 Describe the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td>5.4 Explain how to interpret operational requirements</td>
</tr>
</tbody>
</table>
Unit 231      How to Prepare and Start Up Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:

- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Operational requirements may include:

- policies
- procedures
- instructions
- codes of practice
- standards
- Schedules.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Dealing with other people should include:
- co-workers
- supervisors
- managers
- workers of other disciplines.

Faults should include:
- damage
- wear
- malfunction
- process deviations
- service defects.

Hazards should include:
- spillages
- uncontrolled emissions
- H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.
### Learning outcome
The learner will:
1. Be able to prepare to start up process systems

#### Assessment criteria
The learner can:
1.1 Obtain correct operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete

### Learning outcome
The learner will:
2. Be able to take responsibility for others

#### Assessment criteria
The learner can:
2.1 Organise own and others’ work where appropriate
2.2 Brief relevant personnel

### Learning outcome
The learner will:
3. Be able to maintain the correct plant conditions

#### Assessment criteria
The learner can:
3.1 Facilitate optimum processing and the correct operating conditions
<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>4. Be able to deal with problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>4.1 Identify faults accurately and take appropriate action</td>
</tr>
<tr>
<td>4.2 Identify difficulties with relevant parts of the Safe Systems of Work system and take appropriate action</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
</tr>
<tr>
<td>5. Be able to work to organisational and operational procedures</td>
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</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
<tr>
<td>5.2 Maintain the work area to be clean and hazard free</td>
</tr>
</tbody>
</table>
Unit 232 Prepare and Start Up Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

This unit should not be taken prior to taking ‘How to Prepare and Start Up Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Dealing with other people should include:
- co-workers
- supervisors
- managers
- workers of other disciplines.

Faults should include:
- damage
- wear
- Malfunction
- process deviations
- service defects.

Hazards should include:
- spillages
- uncontrolled emissions
- H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.
Unit 233  How to Prepare and Shut Down Process Systems Within a Processing Industries Hydrocarbons Environment

UAN: J/601/7976
Level: Level 2
Credit value: 3
GLH: 26
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to check the required information

Assessment criteria
The learner can:
1.1 Explain how to access and interpret:
   • shut down instructions
   • operational instructions
1.2 Identify the different sources of information
1.3 Explain how to interpret plant drawings and manuals

Learning outcome
The learner will:
2. Know the plant environment

Assessment criteria
The learner can:
2.1 Describe the plant layout and its connection with other systems

Learning outcome
The learner will:
3. Know the function and operation of plant and equipment

Assessment criteria
The learner can:
3.1 Describe the equipment and its function, as relevant to the plant
3.2 Describe the functioning of process control including instrumentation and process logic controllers
3.3 Explain how to operate process systems
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td>4. Know how to shut down process systems</td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td>4.1 Explain how to operate shutdown systems</td>
</tr>
<tr>
<td></td>
<td>4.2 Explain how to isolate plant and utilities</td>
</tr>
<tr>
<td><strong>Learning outcome</strong></td>
<td></td>
</tr>
<tr>
<td>The learner will:</td>
<td>5. Know how to minimise and deal with safety issues in the workplace</td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td>5.1 Explain how to use Safe Systems of Work processes to:</td>
</tr>
<tr>
<td></td>
<td>• identify hazards</td>
</tr>
<tr>
<td></td>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
</tr>
<tr>
<td><strong>Learning outcome</strong></td>
<td></td>
</tr>
<tr>
<td>The learner will:</td>
<td>6. Know how to work to organisational and operational procedures</td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td>6.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td></td>
<td>6.2 Describe the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td></td>
<td>6.3 Explain how to interpret operational requirements</td>
</tr>
</tbody>
</table>
Unit 233 How to Prepare and Shut Down Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Preparing to shut down a process system should include:
- informing relevant personnel
- continued running of the remainder of the plant
- valve and equipment settings.

Shut down instructions should be:
- oral
- written
- Operational instructions should include:
  - sequence of shutdown
  - recommended rate of shut down.

Hazards should include:
- spillages
- uncontrolled emissions
- consideration of H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.

Shut down hazards should include:
- standby equipment
- operational
- vents
- noise
- heat.
Learning outcome
The learner will:
1. Be able to prepare for shutdown

Assessment criteria
The learner can:
1.1 Obtain operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Make appropriate preparations for shut down

Learning outcome
The learner will:
2. Be able to shutdown process systems

Assessment criteria
The learner can:
2.1 Shut down the process system safely
2.2 Isolate plant and utilities

Learning outcome
The learner will:
3. Be able to minimise risks when shutting down

Assessment criteria
The learner can:
3.1 Identify shut down hazards and how to protect against them
3.2 Monitor shut down hazards and take corrective action to minimise risk
<table>
<thead>
<tr>
<th>Learning outcome</th>
</tr>
</thead>
</table>
| The learner will:
| 4. Be able to work to organisational and operational procedures |

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
</table>
| The learner can:
| 4.1 Work safely in accordance with operational requirements and associated Safe Systems of Work |
Unit 234
Prepare and Shut Down Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

**Guidance**
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed prerequisite is that the learner is likely to be an operator with some experience, seeking recognition or progression.

This unit should not be taken prior to taking ‘How to Prepare and Shut Down Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

**Assessment Context**
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Preparing to shut down a process system should include:
- informing relevant personnel
- continued running of the remainder of the plant
- valve and equipment settings.

Shut down instructions should be:
- oral
- written.

Operational instructions should include:
- sequence of shutdown
- recommended rate of shut down.

Hazards should include:
- spillages
- uncontrolled emissions
- consideration of H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.

Shut down hazards should include:
- standby equipment
- operational
- vents
- noise
- heat.
Unit 335
How to Operate and Monitor Process Systems Within a Processing Industries Hydrocarbons Environment

UAN: A/601/7974
Level: Level 3
Credit value: 4
GLH: 34

Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to check the required information

Assessment criteria
The learner can:
1.1 Identify the different sources of information
1.2 Identify the nature of information required
1.3 Explain how to deal with oral and written information
1.4 Explain how to interpret plant drawings and manuals

Learning outcome
The learner will:
2. Know the function and operation of plant and equipment

Assessment criteria
The learner can:
2.1 Describe the use and functions of the equipment
2.2 Describe the functioning of process control including instrumentation and process logic controllers
### Learning outcome
The learner will:

3. Know how to achieve the specification parameters

### Assessment criteria
The learner can:

3.1 Identify normal plant conditions and the tolerances within which they operate
3.2 Explain what normal operating conditions are and how they are achieved
3.3 Explain the effects of changes in ambient conditions on plant operation
3.4 Explain how to deal with process system throughput

### Learning outcome
The learner will:

4. Know how to deal with the reactions taking place

### Assessment criteria
The learner can:

4.1 Explain the reactions taking place, conditions and effects of changes
4.2 Describe the composition and properties of hydrocarbon feedstock and products

### Learning outcome
The learner will:

5. Know how to monitor process systems

### Assessment criteria
The learner can:

5.1 Explain how to perform leak testing and sampling
5.2 Explain how to interpret the results of leak testing and sampling

### Learning outcome
The learner will:

6. Know how to identify and deal with faults and emergency situations

### Assessment criteria
The learner can:

6.1 Explain how to identify:
  - emergency situations
  - process system faults
6.2 Identify the actions appropriate to emergency situations
6.3 Explain types and causes of deviations and the relevant actions to take when they occur
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Know how abnormal conditions affect the process system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Describe the emergency shutdown control systems</td>
</tr>
<tr>
<td>7.2</td>
<td>Describe the fire and gas control systems</td>
</tr>
<tr>
<td>7.3</td>
<td>Describe the effects of loss of any utility and its reinstatement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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</thead>
<tbody>
<tr>
<td>8.</td>
<td>Know how to minimise and deal with safety issues in the workplace</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Explain how to use Safe Systems of Work processes to:</td>
</tr>
<tr>
<td></td>
<td>• identify hazards</td>
</tr>
<tr>
<td></td>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td>9.</td>
<td>Know how to work to organisational and operational procedures</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td>9.2</td>
<td>Describe the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td>9.3</td>
<td>Explain how to interpret operational requirements</td>
</tr>
<tr>
<td>9.4</td>
<td>Identify the limits of own responsibilities</td>
</tr>
</tbody>
</table>
Unit 335  How to Operate and Monitor Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.

Operational requirements may include:
• policies
• procedures
• instructions
• codes of practice
• standards
• schedules.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Reactions and changes should include chemical and physical properties. Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.

Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.

System faults should include:
- lack of services and supply
- variances in services
- mechanical and electrical breakdown
- process
- utility setting deviations.

Actions to be taken in the event of an emergency situation should include:
- quick shut down
- return process to within safe parameters
- operate standby equipment.
Information required could be:
- oral
- written
- equipment status
- process status
- handover reports.

Actions to take when a deviation occurs, include:
- report
- record
- adjust.
Unit 336 Operate and Monitor Process Systems Within a Processing Industries Hydrocarbons Environment

**UAN:** T/601/7973  
**Level:** Level 3  
**Credit value:** 4  
**GLH:** 12  
**Endorsement by a sector or regulatory body:** This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

### Learning outcome

The learner will:

1. Be able to check the information supplied

### Assessment criteria

The learner can:

1.1 Review the information to ensure that it is accurate and complete  
1.2 Take corrective action if anomalies are found in the information  
1.3 Update the information if this is required

### Learning outcome

The learner will:

2. Be able to use the equipment

### Assessment criteria

The learner can:

2.1 Demonstrate the use of the instrumentation and process logic controllers, as applicable to the plant

### Learning outcome

The learner will:

3. Be able to maintain normal operating conditions

### Assessment criteria

The learner can:

3.1 Achieve the required process system specification through appropriate work methods/techniques  
3.2 Ensure normal operating conditions by appropriate process systems throughput  
3.3 Maintain the process system at the required normal operating conditions
### Learning outcome
The learner will:
4. Be able to deal with faults and emergency situations

### Assessment criteria
The learner can:
4.1 Identify process system faults and abnormal operating conditions
4.2 Respond to emergency situations and take appropriate action to minimise their impact

### Learning outcome
The learner will:
5. Be able to monitor process systems

### Assessment criteria
The learner can:
5.1 Interpret the results of sampling and testing
5.2 Make adjustments if this is necessary, to maintain normal operating conditions
5.3 Report deviations that are not within limits of own responsibility

### Learning outcome
The learner will:
6. Be able to work to organisational and operational procedures

### Assessment criteria
The learner can:
6.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
6.2 Maintain the work area to be clean and hazard free
Unit 336 Operate and Monitor Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Operate and Monitor Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Emergencies could be those relating to:
- people
- plant
- environment.

Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.

System faults should include:
- lack of services and supply
- variances in services
- mechanical and electrical breakdown
- process
- utility setting deviations.

Actions to be taken in the event of an emergency situation should include:
- quick shut down
- return process to within safe parameters
- operate standby equipment

Information required could be:
- oral
- written
- equipment status
- process status
- handover reports.

Actions to take when a deviation occurs, include:
- report
- record
- adjust.
Unit 337
How to Isolate and Reinstate Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

UAN: H/601/7984
Level: Level 3
Credit value: 4
GLH: 32
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to interpret and use information

Assessment criteria
The learner can:
1.1 Identify the different sources of information available
1.2 Explain how to deal with oral and written information
1.3 Explain how to access and interpret instructions
1.4 Explain how to interpret plant drawings and manuals
1.5 Explain how to access and interpret operational instructions on safety, downtime, tools and equipment used

Learning outcome
The learner will:
2. Know the functions of the equipment

Assessment criteria
The learner can:
2.1 Describe the equipment and its functions
2.2 Describe the functioning of process control including instrumentation and process logic controllers
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Know the factors that affect safe systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Describe the properties of purging media</td>
</tr>
<tr>
<td>3.2</td>
<td>Identify the factors impacting upon optimising performance</td>
</tr>
<tr>
<td>3.3</td>
<td>Describe the composition and properties of hydrocarbon feedstock and products</td>
</tr>
<tr>
<td>3.4</td>
<td>Identify all relevant sources of energy to prime movers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td>4.</td>
<td>Know how reactions to abnormal conditions affect the process system</td>
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</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Describe the effects of emergency shutdown control systems</td>
</tr>
<tr>
<td>4.2</td>
<td>Describe the effects of fire and gas control systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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</thead>
<tbody>
<tr>
<td>5.</td>
<td>Know how to isolate process plant</td>
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</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Identify isolation devices and methods of installation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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</thead>
<tbody>
<tr>
<td>6.</td>
<td>Know how to de-isolate process plant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Explain the principles of de-isolation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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</thead>
<tbody>
<tr>
<td>7.</td>
<td>Know how to maintain safety during isolation and de-isolation activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Identify how risks can be minimised through appropriate reporting, adjusting and recording</td>
</tr>
<tr>
<td>7.2</td>
<td>Explain how to identify hazards</td>
</tr>
<tr>
<td>7.3</td>
<td>Identify relevant tests and confirm safety of the plant and equipment</td>
</tr>
</tbody>
</table>
## Learning outcome

The learner will:

8. Know the systems and methods for maintaining a safe environment

## Assessment criteria

The learner can:

8.1 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)

8.2 Explain the methods and limitations of:
   - depressurisation/pressurisation
   - blowdown
   - temperature
   - relief systems
   - drains
   - flares
   - vents

## Learning outcome

The learner will:

9. Know how to work to organisational and operational procedures

## Assessment criteria

The learner can:

9.1 Explain how to select, use and care for Personal Protective Equipment (PPE)

9.2 Describe the implications of statutory and organisational requirements

9.3 Explain how to work with and within the relevant parts of the Safe Systems of Work system

9.4 Explain how to interpret operational requirements

9.5 Identify the limits of own responsibilities
Unit 337      How to Isolate and Reinstate Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.

Operational requirements may include:
• policies
• procedures
• instructions
• codes of practice
• standards
• schedules.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Instructions should relate to:
- safety
- downtime
- integration of processes.

Information should relate to:
- work activity briefing provided to others
- clarification of operational instructions
- work activity recording.

Oral and written information should include:
- reinstatement completion details
- work activity details.

Factors impacting upon optimising performance should include:
- layout
- tools and equipment required
- purging medium required.

Hazards should include:
- spillages
- uncontrolled emissions
- extreme weather conditions.

Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.
Unit 338  
Isolate and Reinstate Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>D/601/7983</th>
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<td>GLH:</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

**Learning outcome**

The learner will:
1. Be able to prepare for isolation and de-isolation of plant and equipment

**Assessment criteria**

The learner can:
1.1 Obtain instructions and organise work correctly
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Ensure that the plant and equipment is prepared
1.4 Monitor preparations and minimise risks

**Learning outcome**

The learner will:
2. Be able to inform relevant others of work activities

**Assessment criteria**

The learner can:
2.1 Ensure that relevant personnel are briefed

**Learning outcome**

The learner will:
3. Be able to isolate plant and equipment

**Assessment criteria**

The learner can:
3.1 Isolate plant and equipment safely
3.2 Monitor and maintain the status of the isolation
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Be able to de-isolate plant and equipment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
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<tbody>
<tr>
<td>4.1</td>
<td>De-isolate plant and equipment safely</td>
</tr>
<tr>
<td>4.2</td>
<td>Monitor de-isolation and minimise risks</td>
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<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>5.</td>
<td>Be able to maintain safety during isolation and de-isolation activities</td>
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<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Carry out relevant tests and confirm safety of the plant and equipment</td>
</tr>
<tr>
<td>5.2</td>
<td>Ensure that the relevant parts of the Safe Systems of Work system are operated effectively</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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</thead>
<tbody>
<tr>
<td>6.</td>
<td>Be able to work to organisational and operational procedures</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
<tr>
<td>6.2</td>
<td>Maintain the work area to be clean and hazard free</td>
</tr>
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</table>
Unit 338  Isolate and Reinstall Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Isolate and Reinstall Process Plant and Equipment Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Risks can relate to:
- personnel
- environment
- process
- plant
- equipment.
Unit 339  How to Monitor and Maintain Health, Environment and Safety Systems Within a Processing Industries Hydrocarbons Environment

UAN: T/601/7956
Level: Level 3
Credit value: 5
GLH: 44

Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know the factors that affect safe systems

Assessment criteria
The learner can:
1.1 Describe the factors that affect safe systems
1.2 Describe the effects of H2S (hydrogen sulphide) and other toxic substances
1.3 Describe the properties of purging media
1.4 Describe the composition and properties of hydrocarbon feedstock and products
1.5 Identify all relevant sources of energy to prime movers
1.6 Describe the functioning of instrumentation and process logic control

Learning outcome
The learner will:
2. Know the conditions that maintain a safe working environment

Assessment criteria
The learner can:
2.1 Identify the safe working practices appropriate to the location
2.2 Identify normal plant conditions and the tolerances within which they operate
2.3 Explain how to interpret and maintain conditions relating to the work environment, equipment, materials, procedures, special needs
2.4 Describe the plant layout and its connection with other systems
### Learning outcome
The learner will:
3. Know the systems and methods for maintaining a safe environment

### Assessment criteria
The learner can:
3.1 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)
3.2 Describe the consequences of emissions to the environment
3.3 Explain the methods of depressurisation and/or pressurisation (to include blowdown and temperature)
3.4 Explain blowdown and relief systems and identify their limitations
3.5 Describe the drain systems associated with the plant and their limitations
3.6 Describe the flare/vent systems associated with the plant and their limitations

### Learning outcome
The learner will:
4. Know the emergency procedures and the effects of these procedures

### Assessment criteria
The learner can:
4.1 Explain the emergency procedures for plant in a hydrocarbons environment
4.2 Explain the effects of:
   - emergency shutdown control system
   - fire and gas control system
   - loss of any utility and its reinstatement

### Learning outcome
The learner will:
5. Know how to liaise with others to maintain a safe working environment

### Assessment criteria
The learner can:
5.1 Describe how to access and interface with the relevant personnel
5.2 Explain the handover and reporting procedures
5.3 Explain how to deal with differing types of communication
### Learning outcome

The learner will:

6. Know how to use information to maintain a safe working environment

### Assessment criteria

The learner can:

6.1 Identify what sources of information are available
6.2 Explain how to interpret plant drawings and manuals
6.3 Explain how to deal with different types of information

---

### Learning outcome

The learner will:

7. Know how to work to organisational and operational requirements

### Assessment criteria

The learner can:

7.1 Explain how to select, use and care for Personal Protective Equipment (PPE)
7.2 Explain how to interpret and implement:
   - organisational policy, practices and procedures
   - relevant legislation and other legal requirements
7.3 Explain how to interpret operational requirements
7.4 Describe the implications of statutory and organisational requirements
7.5 Identify the procedure for entry into confined spaces
Unit 339 How to Monitor and Maintain Health, Environment and Safety Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• individual operation
• team operation
• maintaining communication
• reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate
• hazard identification
• risk assessment
• permit to work
• any other associated systems.

Flare/vent systems should include capacity and radiation.

Personal Protective Equipment (PPE) should include:
• sight/hearing protection
• coveralls
• gloves
• footwear
• hard hats
• respirators.
Relevant legislation may include:
- health
- environment
- hygiene and safety legislation
- industry specific legislation
- approved codes of practice
- organisational policies
- practices and procedures
- environmental legislation.

Legal requirements cover things such as:
- industry specific legislation
- employment requirements
- approved codes of practice
- customer requirements.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Communication should include:
- oral
- written
- computer based
- visual/pictorial.

Information should include:
- work activity
- briefing provided to others
- clarification of operational instructions
- work activity recording and delegation to others
- handovers.

Relevant personnel should include:
- line managers
- staff representatives
- colleagues
- customers
- suppliers
- those for whom the learner has responsibility.
Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Properties of hydrocarbon feedstock and products to include:
- toxicity
- flammability
- specific gravity (SG)
- temperature.
# Unit 340

## Monitor and Maintain Health, Environment and Safety Systems Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>M/601/7955</th>
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<tbody>
<tr>
<td>Level:</td>
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<td>GLH:</td>
<td>10</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

### Learning outcome

The learner will:
1. Be able to monitor operational factors and react to them as necessary

### Assessment criteria

The learner can:
1.1 Identify, note and react to factors likely to affect operations
1.2 Identify and make appropriate recommendations to relevant personnel on improving conditions

### Learning outcome

The learner will:
2. Be able to liaise with others to maintain a safe working environment

### Assessment criteria

The learner can:
2.1 Verify information received and give appropriate advice based on that information
2.2 Disseminate requirements relating to work activities to relevant personnel
2.3 Consult and seek advice on permit to work requirements from relevant personnel
2.4 Use effective communication techniques with all relevant personnel
### Learning outcome
The learner will:

3. Be able to record and maintain health, environment and safety information

### Assessment criteria
The learner can:

3.1 Record all relevant operations and services information
3.2 Maintain appropriate and clear records both written and computer based
3.3 Maintain all relevant maintenance and health, environment and safety procedures

### Learning outcome
The learner will:

4. Be able to work within current health, environment and safety legislation

### Assessment criteria
The learner can:

4.1 Determine if the working conditions and the use of resources satisfy current legislation
4.2 Identify and take appropriate action on potential or actual breaches of requirements

### Learning outcome
The learner will:

5. Be able to work to organisational and operational procedures

### Assessment criteria
The learner can:

5.1 Deal effectively with accidents and incidents
5.2 Work safely in accordance with operational requirements and associated Safe Systems of Work
Unit 340  Monitor and Maintain Health, Environment and Safety Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking 'How to Monitor and Maintain Health, Environment and Safety Systems Within a Processing Industries (Hydrocarbons) Environment.'

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:

- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Unit 341  How to Control Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>J/601/7962</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

**Learning outcome**
The learner will:
1. Know the plant layout

**Assessment criteria**
The learner can:
1.1 Describe the plant layout and its integration with other processes and systems

**Learning outcome**
The learner will:
2. Know the emergency procedures and the effect of these procedures

**Assessment criteria**
The learner can:
2.1 Explain the emergency procedures for the installation
2.2 Explain how to react appropriately in an emergency situation
2.3 Explain the operation of and potential implications of:
   - the emergency shutdown control systems
   - the fire and gas control systems
2.4 Identify those who must be contacted and how to contact them
2.5 Explain the effect and potential implications of loss of any system and its reinstatement
**Learning outcome**
The learner will:
3. Know how raw materials react and the properties of the products that are produced

**Assessment criteria**
The learner can:
3.1 Identify the reactions taking place and the effect of changes to the physical and chemical properties of the reactants and products
3.2 Identify the composition and properties of the fluids and gases that are produced

---

**Learning outcome**
The learner will:
4. Know how the equipment and systems affect the safe production of hydrocarbons

**Assessment criteria**
The learner can:
4.1 Describe the equipment and its function and operation
4.2 Explain how to access and interpret the status of the appropriate equipment and systems

---

**Learning outcome**
The learner will:
5. Know the conditions and parameters that maintain a safe working environment

**Assessment criteria**
The learner can:
5.1 Identify the normal operating parameters and their tolerances
5.2 Explain the functioning of remote process control including instrumentation and process logic controllers
5.3 Explain the effects of changes in ambient conditions on plant operation
5.4 Identify the methods and consequences of isolation, depressurisation and draining

---

**Learning outcome**
The learner will:
6. Know how to access and use information from different sources

**Assessment criteria**
The learner can:
6.1 Explain how to access and interpret plant drawings and manuals
6.2 Explain how to access and interpret information on weather conditions
6.3 Explain how to access key emergency response personnel
### Learning outcome

The learner will:

7. Know the systems and methods for maintaining a safe environment

### Assessment criteria

The learner can:

7.1 Explain the consequences of emissions to the environment
7.2 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)

### Learning outcome

The learner will:

8. Know how to work to organisational and operational requirements

### Assessment criteria

The learner can:

8.1 Explain how to select, use and care for Personal Protective Equipment (PPE)
8.2 Explain how to interpret operational requirements
8.3 Explain the implications of statutory and organisational requirements
Unit 341 How to Control Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.
Emergencies include those relating to:
- people
- plant
- the environment.

Emergency situations should include:
- operational difficulties
- extreme weather
- equipment failure
- leaks
- fires
- critical situations.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

The composition and properties of produced fluids and gases should include:
- toxicity
- flammability
- specific gravity (SG)
- temperature.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

The status of equipment and systems should include:
- detection
- protection
- communications
- evacuation.
Reacting appropriately to an emergency situation should 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 shutdown (EDS)
- account for people.
Unit 342  Control Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

**UAN:** F/601/7961

**Level:** Level 3

**Credit value:** 4

**GLH:** 12

**Endorsement by a sector or regulatory body:** This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

**Learning outcome**
The learner will:

1. Be able to maintain a state of readiness in case of an emergency

**Assessment criteria**
The learner can:

1.1 Access current emergency procedures and report all anomalies
1.2 Take part in drills and exercises
1.3 Identify all conditions which may affect the emergency response

**Learning outcome**
The learner will:

2. Be able to identify and respond to emergency situations

**Assessment criteria**
The learner can:

2.1 Identify developing and existing emergency situations
2.2 Activate relevant alarms and take actions appropriate to the situation
2.3 Identify and take the actions required to make the situation safe

**Learning outcome**
The learner will:

3. Be able to monitor the situation to minimise risk

**Assessment criteria**
The learner can:

3.1 Monitor the situation and inform personnel so that risks to process, plant and equipment are minimised
### Learning outcome

The learner will:

4. Be able to maintain all relevant communication channels to control an emergency situation

### Assessment criteria

The learner can:

4.1 Report the emergency situation correctly
4.2 Communicate all relevant information and instructions
4.3 Clarify and act upon information received
4.4 Record information accurately
4.5 Hand over all safety critical information

### Learning outcome

The learner will:

5. Be able to work to organisational and operational procedures

### Assessment criteria

The learner can:

5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
Unit 342  Control Emergencies and Critical Situations Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Control Emergencies and Critical Situations Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:

- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Emergencies could be those relating to:

- people
- plant
- environment.
Emergency situations should include:
• operational difficulties
• extreme weather
• equipment failure
• leaks
• fires
• critical situations.

Types of alarms should include:
• audible
• oral warnings
• installation specific fixed system.

Appropriate information should include:
• oral
• telephone
• public address system
• radio.

Reacting appropriately to an emergency situation should 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 shutdown (EDS)
• account for people.
Unit 343 How to Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries Hydrocarbons Environment

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<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
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Learning outcome
The learner will:
1. Know how to adopt a professional approach to ensuring effective working relationships

Assessment criteria
The learner can:
1.1 Identify the main components of productive working relationships
1.2 Describe how to avoid damaging working relationships
1.3 Describe how working relationships might be improved

Learning outcome
The learner will:
2. Know how to communicate

Assessment criteria
The learner can:
2.1 Explain how to communicate effectively, to maintain productive working relationships

Learning outcome
The learner will:
3. Know how to involve others in the decision making process

Assessment criteria
The learner can:
3.1 Explain how to analyse proposals
3.2 Explain how proposals might be used to make improvements
### Learning outcome
The learner will:
4. Know how to minimise and deal with safety issues in the workplace

### Assessment criteria
The learner can:
4.1 Explain how to work with and within the Safe Systems of Work system
4.2 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)
4.3 Explain how to identify, control and minimise work area hazards and reduce risks to ALARP

### Learning outcome
The learner will:
5. Know the role of self and others

### Assessment criteria
The learner can:
5.1 Identify own job role, immediate manager’s job role and the limits of responsibilities for each role
5.2 Identify the limits of own expertise

### Learning outcome
The learner will:
6. Know how to work to organisational and operational procedures

### Assessment criteria
The learner can:
6.1 Explain the implications of statutory and organisational requirements
6.2 Explain how to interpret operational requirements
Unit 343 How to Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:

- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).
Situations where communication is used must include, as appropriate:

- informal meetings
- formal meetings
- one to ones
- normal work situations
- team briefings
- contingency situations
- Handovers.

Operational requirements may include:

- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Unit 344 Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries Hydrocarbons Environment

UAN: Y/601/7965
Level: Level 3
Credit value: 2
GLH: 6
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Be able to adopt a professional approach to ensuring effective working relationships

Assessment criteria
The learner can:
1.1 Make clear efforts to establish and maintain productive working relationships
1.2 Include others in the decision making process, where this is applicable

Learning outcome
The learner will:
2. Be able to offer support to colleagues, within the limits of own responsibility

Assessment criteria
The learner can:
2.1 Provide opportunities to discuss work-related matters with relevant people
2.2 Provide opportunities to discuss personal problems
2.3 Refer individuals to others where appropriate
### Learning outcome

The learner will:

3. Be able to pass on and receive information necessary for effective operations

### Assessment criteria

The learner can:

3.1 Record all relevant information
3.2 Ensure that information given and received on current operational status is accurate and complete

### Learning outcome

The learner will:

4. Be able to use communication techniques to ensure effective operations

### Assessment criteria

The learner can:

4.1 Communicate clearly:
   - changes in operational requirements
   - all relevant operating instructions
4.2 Communicate all relevant information on activities, progress, results and achievements to immediate manager

### Learning outcome

The learner will:

5. Be able to involve others in the decision making process

### Assessment criteria

The learner can:

5.1 Encourage individuals to offer ideas and views and provide them with appropriate feedback
5.2 Provide clear reasons to individuals where ideas and views are not progressed

### Learning outcome

The learner will:

6. Be able to contribute to improvements in the workplace

### Assessment criteria

The learner can:

6.1 Present clear proposals
6.2 Analyse proposals and, where appropriate, put forward alternatives
Learning outcome
The learner will:
7. Be able to enhance productive working relationships with immediate manager

Assessment criteria
The learner can:
7.1 Seek ways of improving the relationship with immediate manager, if this is necessary
7.2 Maintain the relationship with immediate manager where disagreements occur
7.3 Seek information and advice from immediate manager when appropriate

Learning outcome
The learner will:
8. Be able to work to organisational and operational procedures

Assessment criteria
The learner can:
8.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
8.2 Leave the work area clean and hazard free
Unit 344  Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking 'How to Create, Maintain and Enhance Productive Working Relationships Within a Processing Industries (Hydrocarbons) Environment.'

Assessment Context

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:

- individual operation
- team operation
- consideration of H2S (hydrogen sulphide) and other toxic substances
- maintaining communication
- reacting to on-site emergencies.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Situations where communication is used must include, as appropriate:

- informal meetings
- formal meetings
- one to ones
- normal work situations
- team briefings
- contingency situations
- handovers.

Operational requirements may include:

- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
### Unit 345

**How to Prepare and Start Up Integrated Process Systems Within a Processing Industries Hydrocarbons Environment**

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**Endorsement by a sector or regulatory body:**
This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

#### Learning outcome

The learner will:

1. Know the plant environment and layout

#### Assessment criteria

The learner can:

1.1 Explain how to access and interpret operational instructions
1.2 Explain the plant layout and its connection with other systems

#### Learning outcome

The learner will:

2. Know who to liaise with when starting up integrated process systems

#### Assessment criteria

The learner can:

2.1 Identify who to deal with when starting up integrated processes

#### Learning outcome

The learner will:

3. Know how to maintain the correct plant conditions

#### Assessment criteria

The learner can:

3.1 Explain how to achieve correct operating conditions
3.2 Explain how to achieve optimum processing
### Learning outcome

The learner will:

4. Know how to minimise and deal with faults and hazards

### Assessment criteria

The learner can:

4.1 Explain the appropriate action to take on identification of faults
4.2 Identify work area hazards that affect integrated process systems
4.3 Identify who to inform if a hazard is identified
4.4 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)

### Learning outcome

The learner will:

5. Know how to work to organisational and operational procedures

### Assessment criteria

The learner can:

5.1 Explain how to work with and within the Safe Systems of Work system
5.2 Explain how to select, use and care for Personal Protective Equipment (PPE)
5.3 Describe the implications of statutory and organisational requirements
5.4 Explain how to interpret operational requirements
Unit 345
How to Prepare and Start Up Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context

There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Dealing with other people should include:
- co-workers
- supervisors
- managers
- workers of other disciplines.

Faults should include:
- damage
- wear
- malfunction
- process deviations
- service defects.

Hazards should include:
- spillages
- uncontrolled emissions
- H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.
Unit 346  
Prepare and Start Up  
Integrated Process Systems  
Within a Processing Industries  
Hydrocarbons Environment

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**Learning outcome**
The learner will:
1. Be able to prepare to start up integrated process systems

**Assessment criteria**
The learner can:
1.1 Obtain correct operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Prepare plant and utilities

**Learning outcome**
The learner will:
2. Be able to take responsibility for others

**Assessment criteria**
The learner can:
2.1 Organise own and others’ work where appropriate
2.2 Brief relevant personnel

**Learning outcome**
The learner will:
3. Be able to maintain the correct plant conditions

**Assessment criteria**
The learner can:
3.1 Facilitate optimum processing and the correct operating conditions
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<tr>
<th>Learning outcome</th>
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<tr>
<td>The learner will:</td>
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<tr>
<td>4. Be able to deal with problems</td>
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<th>Assessment criteria</th>
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<td>The learner can:</td>
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<tr>
<td>4.1 Identify faults accurately and take appropriate action</td>
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<td>4.2 Identify difficulties with relevant parts of the Safe Systems of Work system and take appropriate action</td>
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<tr>
<td>The learner will:</td>
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<td>5. Be able to work to organisational and operational procedures</td>
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<tr>
<td>The learner can:</td>
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<tr>
<td>5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
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<tr>
<td>5.2 Maintain the work area to be clean and hazard free</td>
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Unit 346

Prepare and Start Up
Integrated Process Systems
Within a Processing Industries
Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Prepare and Start Up Integrated Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Dealing with other people should include:
- co-workers
- supervisors
- managers
- workers of other disciplines.

Faults should include:
- damage
- wear
- malfunction
- process deviations
- service defects.

Hazards should include:
- spillages
- uncontrolled emissions
- H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.
Unit 347 How to Operate and Monitor Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

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<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
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**Learning outcome**

The learner will:

1. Know how to check the required information

**Assessment criteria**

The learner can:

1.1 Identify the different sources of information
1.2 Identify the nature of information required
1.3 Explain how to deal with oral and written information
1.4 Explain how to interpret plant drawings and manuals

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**Learning outcome**

The learner will:

2. Know the function and operation of plant and equipment

**Assessment criteria**

The learner can:

2.1 Describe the use and functions of the equipment
2.2 Describe the functioning of process control including instrumentation and process logic controllers
### Learning outcome
The learner will:

3. Know how to achieve the specification parameters

### Assessment criteria
The learner can:

3.1 Identify normal plant conditions and the tolerances within which they operate
3.2 Explain what normal operating conditions are and how they are achieved
3.3 Explain the effects of changes in ambient conditions on plant operation
3.4 Explain how to deal with process system throughput

### Learning outcome
The learner will:

4. Know how to deal with the reactions taking place

### Assessment criteria
The learner can:

4.1 Explain the reactions taking place, conditions and effects of changes
4.2 Describe the composition and properties of hydrocarbon feedstock and products

### Learning outcome
The learner will:

5. Know how to monitor process systems

### Assessment criteria
The learner can:

5.1 Explain how to perform leak testing and sampling
5.2 Explain how to interpret the results of leak testing and sampling

### Learning outcome
The learner will:

6. Know how to identify and deal with faults and emergency situations

### Assessment criteria
The learner can:

6.1 Explain how to identify:
   - emergency situations
   - process system faults
6.2 Identify the actions appropriate to emergency situations
6.3 Explain types and causes of deviations and the relevant actions to take when they occur

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City & Guilds Level 2 Diploma/Level 3 NVQ Diploma in Processing Operations: Hydrocarbons (0640-23-33-34)
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<td>The learner will:</td>
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<td>7. Know how abnormal conditions affect the process system</td>
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<td>7.1 Describe the emergency shutdown control systems</td>
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<td>7.2 Describe the fire and gas control systems</td>
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<td>7.3 Describe the effects of loss of any utility and its reinstatement</td>
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<td>The learner will:</td>
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<tr>
<td>8. Know how to minimise and deal with safety issues in the workplace</td>
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<tr>
<td>• identify hazards</td>
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<tr>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<td>9. Know how to work to organisational and operational procedures</td>
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<td>9.2 Describe the implications of statutory and organisational requirements</td>
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<td>9.3 Explain how to interpret operational requirements</td>
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<td>9.4 Identify the limits of own responsibilities</td>
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Unit 347     How to Operate and Monitor Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Reactions and changes should include chemical and physical properties. Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.

Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.

System faults should include:
- lack of services and supply
- variances in services
- mechanical and electrical breakdown
- process
- utility setting deviations.
Actions to be taken in the event of an emergency situation should include:

- quick shut down
- return process to within safe parameters
- operate standby equipment.

Information required could be:

- oral
- written
- equipment status
- process status
- handover reports.

Actions to take when a deviation occurs, include:

- report
- record
- adjust.
Unit 348 Operate and Monitor Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

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**Learning outcome**

The learner will:
1. Be able to check the information supplied

**Assessment criteria**

The learner can:
1.1 Review the information to ensure that it is accurate and complete
1.2 Take corrective action if anomalies are found in the information
1.3 Update the information if this is required

**Learning outcome**

The learner will:
2. Be able to use the equipment

**Assessment criteria**

The learner can:
2.1 Demonstrate the use of the instrumentation and process logic controllers, as applicable to the plant
### Learning outcome
The learner will:

3. Be able to maintain normal operating conditions

### Assessment criteria
The learner can:

3.1 Achieve the required process system specification through appropriate work methods/techniques
3.2 Ensure normal operating conditions by appropriate process systems throughput
3.3 Maintain the process system at the required normal operating conditions

### Learning outcome
The learner will:

4. Be able to deal with faults and emergency situations

### Assessment criteria
The learner can:

4.1 Identify process system faults and abnormal operating conditions
4.2 Respond to emergency situations and take appropriate action to minimise their impact

### Learning outcome
The learner will:

5. Be able to monitor process systems

### Assessment criteria
The learner can:

5.1 Interpret the results of sampling and testing
5.2 Make adjustments if this is necessary, to maintain normal operating conditions
5.3 Report deviations that are not within own responsibility
5.4 Take samples and carry out relevant tests and comparative testing

### Learning outcome
The learner will:

6. Be able to work to organisational and operational procedures

### Assessment criteria
The learner can:

6.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
6.2 Maintain the work area to be clean and hazard free
Unit 348 Operate and Monitor Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy. The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Operate and Monitor Integrated Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.
Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work.
- any other associated systems.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Emergencies could be those relating to:
- people
- plant
- environment.

Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.

System faults should include:
- lack of services and supply
- variances in services
- mechanical and electrical breakdown
- process
- utility setting deviations.

Actions to be taken in the event of an emergency situation should include:
- quick shut down
- return process to within safe parameters
- operate standby equipment.
Information required could be:
- oral
- Written
- equipment status
- process status
- handover reports.

Actions to take when a deviation occurs, include:
- report
- Record
- adjust.
Unit 349  How to Prepare and Shut Down Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

UAN: Y/6017982
Level: Level 3
Credit value: 4
GLH: 32

Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>1. Know how to check the required information</td>
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<tr>
<td>Assessment criteria</td>
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<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>1.1 Explain how to access and interpret:</td>
<td></td>
</tr>
<tr>
<td>- shut down instructions</td>
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<tr>
<td>- operational instructions</td>
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<tr>
<td>1.2 Identify the different sources of information</td>
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<tr>
<td>1.3 Explain how to interpret plant drawings and manuals</td>
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<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>2. Know the plant environment</td>
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<td>Assessment criteria</td>
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<tr>
<td>The learner can:</td>
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</tr>
<tr>
<td>2.1 Describe the plant layout and its connection with other systems</td>
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<td>Learning outcome</td>
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<tr>
<td>The learner will:</td>
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<tr>
<td>3. Know the function and operation of plant and equipment</td>
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<thead>
<tr>
<th>Assessment criteria</th>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>3.1 Describe the equipment and its function, as relevant to the plant</td>
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<tr>
<td>3.2 Describe the functioning of process control including instrumentation and process logic controllers</td>
<td></td>
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<tr>
<td>3.3 Explain how to operate integrated process systems, as appropriate to the plant</td>
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<tr>
<td>The learner will:</td>
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<tr>
<td>4. Know how to shut down integrated process systems</td>
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<tr>
<td>The learner can:</td>
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<tr>
<td>4.1 Explain how to input and set shut down settings, process variables and services</td>
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<tr>
<td>4.2 Explain how to isolate plant and utilities from operating sources</td>
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<td>The learner will:</td>
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<tr>
<td>5. Know how to minimise and deal with safety issues in the workplace</td>
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<tr>
<td>5.1 Explain how to use Safe Systems of Work processes to:</td>
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<tr>
<td>• identify hazards</td>
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<tr>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>6. Know how to work to organisational and operational procedures</td>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>6.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
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<tr>
<td>6.2 Describe the implications of statutory and organisational requirements</td>
<td></td>
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<tr>
<td>6.3 Explain how to interpret operational requirements</td>
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</tbody>
</table>
Unit 349 How to Prepare and Shut Down Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

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During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Shut down instructions should be:
- oral
- written.

Operational instructions should include:
- sequence of shutdown
- recommended rate of shut down.

Shut down hazards should include:
- standby equipment
- operational
- vents
- noise
- heat.
Unit 350  Prepare and Shut Down
Integrated Process Systems
Within a Processing Industries
Hydrocarbons Environment

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<tr>
<th>UAN:</th>
<th>R/601/7981</th>
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<td>Credit value:</td>
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<td>GLH:</td>
<td>12</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
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</table>

Learning outcome
The learner will:
1. Be able to prepare for shutdown

Assessment criteria
The learner can:
1.1 Obtain operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Determine shut down time and make appropriate preparations for shut down
1.4 Brief relevant personnel on shut down procedures

Learning outcome
The learner will:
2. Be able to shutdown integrated process systems

Assessment criteria
The learner can:
2.1 Input and set shut down settings, process variables and services
2.2 Isolate plant and utilities
2.3 Shut down the process system safely
### Learning outcome
The learner will:

3. Be able to minimise risks when shutting down

### Assessment criteria
The learner can:

3.1 Protect against shutdown hazards
3.2 Monitor shut down hazards and take corrective action to minimize risk

### Learning outcome
The learner will:

4. Be able to work to organisational and operational procedures

### Assessment criteria
The learner can:

4.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
Unit 350 Prepare and Shut Down Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Prepare and Shut Down Integrated Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
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During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.
Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Operational requirements may include:

- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Unit 351  How to Isolate and Reinstate Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

UAN: H/601/7984
Level: Level 3
Credit value: 4
GLH: 32
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to interpret and use information

Assessment criteria
The learner can:
1.1 Identify the different sources of information available
1.2 Explain how to deal with oral and written information
1.3 Explain how to access and interpret instructions
1.4 Explain how to interpret plant drawings and manuals
1.5 Explain how to access and interpret operational instructions on safety, downtime, tools and equipment used

Learning outcome
The learner will:
2. Know the functions of the equipment

Assessment criteria
The learner can:
2.1 Describe the equipment and its functions
2.2 Describe the functioning of process control including instrumentation and process logic controllers
<table>
<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>3. Know the factors that affect safe systems</td>
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<tr>
<th>Assessment criteria</th>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>3.1 Describe the properties of purging media</td>
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<tr>
<td>3.2 Identify the factors impacting upon optimising performance</td>
</tr>
<tr>
<td>3.3 Describe the composition and properties of hydrocarbon feedstock and products</td>
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<tr>
<td>3.4 Identify all relevant sources of energy to prime movers</td>
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<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>4. Know how reactions to abnormal conditions affect the process system</td>
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<tr>
<th>Assessment criteria</th>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>4.1 Describe the effects of emergency shutdown control systems</td>
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<td>4.2 Describe the effects of fire and gas control systems</td>
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<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>5. Know how to isolate process plant</td>
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<th>Assessment criteria</th>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>5.1 Identify isolation devices and methods of installation</td>
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<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>6. Know how to de-isolate process plant</td>
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<th>Assessment criteria</th>
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<tr>
<td>The learner can:</td>
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<tr>
<td>6.1 Explain the principles of de-isolation</td>
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<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>7. Know how to maintain safety during isolation and de-isolation activities</td>
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<th>Assessment criteria</th>
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<tr>
<td>The learner can:</td>
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<tr>
<td>7.1 Identify how risks can be minimised through appropriate reporting, adjusting and recording</td>
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<tr>
<td>7.2 Explain how to identify hazards</td>
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<tr>
<td>7.3 Identify relevant tests and confirm safety of the plant and equipment</td>
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<tr>
<td>Learning outcome</td>
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<tr>
<td>The learner will:</td>
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<tr>
<td>8.  Know the systems and methods for maintaining a safe environment</td>
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<th>Assessment criteria</th>
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<tr>
<td>The learner can:</td>
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<tr>
<td>8.1 Explain how to use Safe Systems of Work processes to:</td>
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<tr>
<td>- identify hazards</td>
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<tr>
<td>- mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<tr>
<td>8.2 Explain the methods and limitations of:</td>
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<tr>
<td>- depressurisation/pressurisation</td>
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<td>- blowdown</td>
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<td>- temperature</td>
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<td>- relief systems</td>
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<td>- drains</td>
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<td>- flares</td>
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<td>- vents</td>
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<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>9.  Know how to work to organisational and operational procedures</td>
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<tr>
<th>Assessment criteria</th>
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<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>9.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td>9.2 Describe the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td>9.3 Explain how to work with and within the relevant parts of the Safe Systems of Work system</td>
</tr>
<tr>
<td>9.4 Explain how to interpret operational requirements</td>
</tr>
<tr>
<td>9.5 Identify the limits of own responsibilities</td>
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</table>
Unit 351 How to Isolate and Reinstate Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.
Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Instructions should relate to:
- safety
- downtime
- integration of processes.

Information should relate to:
- work activity briefing provided to others
- clarification of operational instructions
- work activity recording.

Oral and written information should include:
- reinstatement completion details
- work activity details.

Factors impacting upon optimising performance should include:
- layout
- tools and equipment required
- purging medium required.

Hazards should include:
- spillages
- uncontrolled emissions
- extreme weather conditions.

Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.
Unit 352  
Isolate and Reinstall Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

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<th>D/601/7983</th>
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</table>

**Learning outcome**
The learner will:
1. Be able to prepare for isolation and de-isolation of plant and equipment

**Assessment criteria**
The learner can:
1.1 Obtain instructions and organise work correctly
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Ensure that the plant and equipment is prepared
1.4 Monitor preparations and minimise risks

**Learning outcome**
The learner will:
2. Be able to inform relevant others of work activities

**Assessment criteria**
The learner can:
2.1 Ensure that relevant personnel are briefed

**Learning outcome**
The learner will:
3. Be able to isolate plant and equipment

**Assessment criteria**
The learner can:
3.1 Isolate plant and equipment safely
3.2 Monitor and maintain the status of the isolation
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>4. Be able to de-isolate plant and equipment</td>
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<tbody>
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<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>4.1 De-isolate plant and equipment safely</td>
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<tr>
<td>4.2 Monitor de-isolation and minimise risks</td>
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<td>The learner will:</td>
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<tr>
<td>5. Be able to maintain safety during isolation and de-isolation activities</td>
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<tbody>
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<td>The learner can:</td>
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<tr>
<td>5.1 Carry out relevant tests and confirm safety of the plant and equipment</td>
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<tr>
<td>5.2 Ensure that the relevant parts of the Safe Systems of Work system are operated effectively</td>
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<tr>
<th>Assessment criteria</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>6.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
<td></td>
</tr>
<tr>
<td>6.2 Maintain the work area to be clean and hazard free</td>
<td></td>
</tr>
</tbody>
</table>
Unit 352 Isolate and Reinstall Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Isolate and Reinstall Process Plant and Equipment Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Risks can relate to:
- personnel
- environment
- process
- plant
- equipment.
Unit 353  How to Facilitate the Maintenance of Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

UAN: F/601/7992
Level: Level 3
Credit value: 4
GLH: 32
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to interpret and use the information available

Assessment criteria
The learner can:
1.1 Explain how to access and interpret instructions
1.2 Explain how to access, interpret and communicate operational requirements
1.3 Explain how to interpret drawings and manuals about the integrated process systems
1.4 Explain how to deal with oral and written information

Learning outcome
The learner will:
2. Know the plant environment

Assessment criteria
The learner can:
2.1 Describe the plant layout and its integration with other processes and systems
2.2 Identify the factors impacting upon optimising performance
2.3 Identify the normal operating parameters and their tolerances
<table>
<thead>
<tr>
<th>Learning outcome</th>
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</thead>
<tbody>
<tr>
<td>The learner will:</td>
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</tr>
<tr>
<td>3. Know the functions of the equipment</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
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<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>3.1 Explain the effects of equipment on integrated process system operation</td>
<td></td>
</tr>
<tr>
<td>3.2 Explain the functioning of process control including instrumentation and process logic controllers</td>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
<td></td>
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<tr>
<td>4. Know how to deal with the reactions taking place</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>4.1 Explain the reactions taking place, conditions and effects of changes</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
<td></td>
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<tr>
<td>5. Know the factors that affect safe systems</td>
<td></td>
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<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>5.1 Describe the properties of purging media and their effects upon integrated process systems</td>
<td></td>
</tr>
<tr>
<td>5.2 Describe the composition and properties of hydrocarbon feedstock and products</td>
<td></td>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>6. Know how to maintain safety</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment criteria</strong></td>
<td></td>
</tr>
<tr>
<td>The learner can:</td>
<td></td>
</tr>
<tr>
<td>6.1 Explain how to identify hazards</td>
<td></td>
</tr>
<tr>
<td>6.2 Identify the safe working practices appropriate to the location</td>
<td></td>
</tr>
<tr>
<td>6.3 Identify all relevant sources of energy to prime movers</td>
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<tr>
<th>Learning outcome</th>
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<tr>
<td>The learner will:</td>
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<tr>
<td>7. Know how reactions to abnormal conditions affect the process system</td>
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<td><strong>Assessment criteria</strong></td>
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<tr>
<td>The learner can:</td>
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</tr>
<tr>
<td>7.1 Describe the effects and operation of emergency shutdown control systems</td>
<td></td>
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<tr>
<td>7.2 Describe the effects and operation of fire and gas control systems</td>
<td></td>
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</tbody>
</table>
### Learning outcome

The learner will:
8. Know how to isolate and de-isolate process plant

### Assessment criteria

The learner can:
8.1 Identify isolation devices and methods of installation
8.2 Explain the principles of de-isolation

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### Learning outcome

The learner will:
9. Know how to minimise and deal with faults and hazards

### Assessment criteria

The learner can:
9.1 Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)

---

### Learning outcome

The learner will:
10. Know how to work to organisational and operational procedures

### Assessment criteria

The learner can:
10.1 Explain how to select, use and care for Personal Protective Equipment (PPE)
10.2 Describe the implications of statutory and organisational requirements
10.3 Explain the procedures for entry into confined spaces
10.4 Explain how to interpret operational requirements
10.5 Identify the limits of own responsibilities
Unit 353 How to Facilitate the Maintenance of Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules
- processes
- arrangement of work area
- downtime
- maintenance rota.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Reactions and changes should include chemical and physical properties.
Instructions should include, as applicable to the plant:
- process system specification
- production schedule
- those covering different plant and equipment
- shut down instructions
- operational instructions
- safety
- downtime
- integration of processes.

Information should be oral and written and should include:
- work activity briefing provided to others
- clarification of operational instructions
- work activity recording
- reinstatement completion details
- work activity details.

The factors impacting upon optimising performance should include:
- layout
- tools and equipment required
- purging medium required.
Hazards should include, as applicable to the workplace:

- spillages
- uncontrolled emissions
- extreme weather conditions.

Composition and properties of hydrocarbon feedstock and products should include:

- toxicity
- flammability
- specific gravity
- temperature.
Unit 354  Facilitate the Maintenance of Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

UAN: A/601/7991
Level: Level 3
Credit value: 4
GLH: 10
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Be able to prepare for maintenance

Assessment criteria
The learner can:
1.1 Access the instructions
1.2 Co-ordinate plans and preparations
1.3 Ensure that all information supplied and recorded is accurate and complete
1.4 Plan and organise own and others’ work

Learning outcome
The learner will:
2. Be able to inform relevant others of work activities

Assessment criteria
The learner can:
2.1 Ensure that relevant personnel are briefed and work allocated to optimise effectiveness of preparation

Learning outcome
The learner will:
3. Be able to de-isolate plant and equipment

Assessment criteria
The learner can:
3.1 De-isolate plant and equipment
3.2 Monitor de-isolation and minimise risks to personnel, environment, process, plant and equipment
<table>
<thead>
<tr>
<th>Learning outcome</th>
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</tr>
</thead>
<tbody>
<tr>
<td>The learner will:</td>
<td></td>
</tr>
<tr>
<td>4. Be able to maintain safety</td>
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</table>

<table>
<thead>
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<th>Assessment criteria</th>
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</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>4.1 Carry out relevant tests and confirm safety of the plant and equipment</td>
</tr>
<tr>
<td>4.2 Ensure that the relevant parts of the Safe Systems of Work system are operated effectively</td>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
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<tbody>
<tr>
<td>The learner will:</td>
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<tr>
<td>5. Be able to work to organisational and operational procedures</td>
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<table>
<thead>
<tr>
<th>Assessment criteria</th>
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</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
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<td>5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
<tr>
<td>5.2 Maintain the work area to be clean and hazard free</td>
</tr>
</tbody>
</table>
Unit 354 Facilitate the Maintenance of Process Plant and Equipment Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Facilitate the Maintenance of Process Plant and Equipment Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:
• wells
• oil storage/discharge process
• gas process
• oil/gas process and export
• water injection
• metering
• utilities.

Safe Systems of Work must include processes or systems that incorporate:
• hazard identification
• risk assessment
• permit to work
• any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Instructions should include, as applicable to the plant:
- process system specification
- production schedule
- those covering different plant and equipment
- shut down instructions
- operational instructions
- safety
- downtime
- integration of processes.
### Unit 355
How to Prepare Integrated Process Systems for Remote Control Operation Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>M/601/7986</th>
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<tbody>
<tr>
<td>Level:</td>
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<td>Credit value:</td>
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<td>GLH:</td>
<td>36</td>
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<tr>
<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

**Learning outcome**
The learner will:
1. Know the plant environment and layout

**Assessment criteria**
The learner can:
1.1 Explain how to access and interpret plant drawings and manuals
1.2 Explain the plant layout and its connection with other systems

**Learning outcome**
The learner will:
2. Know the function and operation of plant and equipment

**Assessment criteria**
The learner can:
2.1 Describe the effects of equipment upon the integrated process system
2.2 Describe the functions of remote process control including instrumentation and process logic controllers
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>3. Know how to deal with the reactions taking place</td>
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</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
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</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>3.1 Describe the composition and properties of hydrocarbon feedstock and products</td>
</tr>
<tr>
<td>3.2 Explain the reactions taking place, conditions and effects of changes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>4. Know how to maintain the correct plant conditions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment criteria</th>
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</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>4.1 Explain the effects of changes in ambient conditions on plant operation</td>
</tr>
<tr>
<td>4.2 Identify the normal operating parameters and associated tolerances</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>5. Know how to minimise and deal with faults and hazards</td>
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<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learner can:</td>
</tr>
<tr>
<td>5.1 Explain how to identify faults and work area hazards</td>
</tr>
<tr>
<td>5.2 Explain the appropriate action to take on identification of faults and work area hazards</td>
</tr>
<tr>
<td>5.3 Explain the effects of the loss of any system upon the integrated process system and its reinstatement</td>
</tr>
<tr>
<td>5.4 Explain how to use Safe Systems of Work processes to:</td>
</tr>
<tr>
<td>• identify hazards</td>
</tr>
<tr>
<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>6. Know how to work to organisational and operational procedures</td>
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<tr>
<th>Assessment criteria</th>
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</thead>
<tbody>
<tr>
<td>The learner can:</td>
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<tr>
<td>6.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td>6.2 Describe the implications of statutory and organisational requirements</td>
</tr>
<tr>
<td>6.3 Explain how to interpret operational requirements</td>
</tr>
</tbody>
</table>
Unit 355  

How to Prepare Integrated Process Systems for Remote Control Operation Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:
- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Hazards should include:
- spillages
- uncontrolled emissions
- H2S (hydrogen sulphide) and other toxic substances
- extreme weather conditions.

Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.

The effects of changes should include chemical and physical properties.
Unit 356  Prepare Integrated Process Systems for Remote Control Operation Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>K/601/7985</th>
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<td>Credit value:</td>
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<td>GLH:</td>
<td>12</td>
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<td>Endorsement by a sector or regulatory body:</td>
<td>This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers</td>
</tr>
</tbody>
</table>

Learning outcome
The learner will:
1. Be able to prepare integrated process systems for remote control operation

Assessment criteria
The learner can:
1.1 Obtain correct operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Prepare plant and utilities

Learning outcome
The learner will:
2. Be able to take responsibility for others

Assessment criteria
The learner can:
2.1 Organise own and others’ work where appropriate
2.2 Brief relevant personnel
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>3. Be able to support the process system</td>
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<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tbody>
<tr>
<td></td>
<td>3.1 Integrate the plant and utilities</td>
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<td>3.2 Facilitate optimum processing</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>4. Be able to deal with problems</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tbody>
<tr>
<td></td>
<td>4.1 Identify faults and take appropriate action</td>
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<td></td>
<td>4.2 Identify difficulties with relevant parts of the Safe Systems of Work system and take appropriate action</td>
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<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tr>
<td></td>
<td>5. Be able to work to organisational and operational procedures</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>5.1 Work safely in accordance with operational requirements and associated Safe Systems of Work</td>
</tr>
<tr>
<td></td>
<td>5.2 Maintain own work area to be clean and hazard free</td>
</tr>
</tbody>
</table>
Unit 356  Prepare Integrated Process Systems for Remote Control Operation Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

This unit should not be taken prior to taking ‘How to Prepare Integrated Process Systems for Remote Control Operation Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:

- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.
Safe Systems of Work must include processes or systems that incorporate:
- hazard identification
- risk assessment
- permit to work
- any other associated systems.

Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Information required could be:
- oral
- written
- equipment status
- process status
- handover reports.
Unit 357
How to Remotely Control
Integrated Process Systems
Within a Processing Industries
Hydrocarbons Environment

UAN: A/601/7988
Level: Level 3
Credit value: 5
GLH: 40
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to check the required information

Assessment criteria
The learner can:
1.1 Identify the different sources of information
1.2 Identify the nature of information required
1.3 Explain how to interpret plant drawings and manuals

Learning outcome
The learner will:
2. Know the functions of the equipment

Assessment criteria
The learner can:
2.1 Describe the equipment and its functions
2.2 Describe the functioning of process control including instrumentation and process logic controllers
<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>3. Know how to achieve the specification parameters</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tbody>
<tr>
<td></td>
<td>3.1 Identify normal plant conditions and the tolerances within which they operate</td>
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<tr>
<td></td>
<td>3.2 Explain how normal operating conditions are achieved</td>
</tr>
<tr>
<td></td>
<td>3.3 Explain the effects of changes in normal operating conditions on plant operation</td>
</tr>
<tr>
<td></td>
<td>3.4 Explain how to deal with process system throughput</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<td></td>
<td>4. Know how to deal with the reactions taking place</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<td></td>
<td>4.1 Explain the reactions taking place, conditions and effects of changes</td>
</tr>
<tr>
<td></td>
<td>4.2 Describe the composition and properties of hydrocarbon feedstock and products</td>
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<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>5. Know how to monitor process systems</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tbody>
<tr>
<td></td>
<td>5.1 Explain how to monitor a system</td>
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<thead>
<tr>
<th>Learning outcome</th>
<th>The learner will:</th>
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<tbody>
<tr>
<td></td>
<td>6. Know how to identify and deal with emergency situations and faults</td>
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<tr>
<th>Assessment criteria</th>
<th>The learner can:</th>
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<tr>
<td></td>
<td>6.1 Explain how to identify:</td>
</tr>
<tr>
<td></td>
<td>• emergency situations</td>
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<tr>
<td></td>
<td>• process system faults</td>
</tr>
<tr>
<td></td>
<td>6.2 Identify the actions appropriate to emergency situations and faults</td>
</tr>
<tr>
<td></td>
<td>6.3 Explain the types and causes of conditions and the relevant actions to take when they occur</td>
</tr>
</tbody>
</table>
### Learning outcome

The learner will:

7. Know how reactions to abnormal conditions affect the process system

### Assessment criteria

The learner can:

1. Describe the effects of emergency shutdown control systems
2. Describe the effects of fire and gas control systems
3. Describe the effects of loss of any utility and its reinstatement

### Learning outcome

The learner will:

8. Know how to minimise and deal with safety issues in the workplace

### Assessment criteria

The learner can:

1. Explain how to use Safe Systems of Work processes to:
   - identify hazards
   - mitigate or reduce risks to as low as reasonably practicable (ALARP)

### Learning outcome

The learner will:

9. Know how to work to organisational and operational procedures

### Assessment criteria

The learner can:

1. Explain how to select, use and care for Personal Protective Equipment (PPE)
2. Describe the implications of statutory and organisational requirements
3. Explain how to interpret operational requirements
4. Identify the limits of own responsibilities
Unit 357

How to Remotely Control Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:

- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Reactions and changes should include chemical and physical properties. Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.

Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Emergencies could be those relating to:
- people
- plant
- environment.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.
System faults should include:
• lack of services and supply
• variances in services
• mechanical and electrical breakdown
• process
• utility setting deviations.

Actions to be taken in the event of an emergency situation should include:
• quick shut down
• return process to within safe parameters
• operate standby equipment.

Information required could be:
• oral
• written
• equipment status
• process status
• handover reports.

Actions to take when a condition occurs, include:
• report
• record
• adjust.

Monitoring a system includes:
• flare and vent
• emergency shut down
• fire and gas.
Learning outcome
The learner will:
1. Be able to check the information supplied

Assessment criteria
The learner can:
1.1 Ensure that all information supplied and recorded is accurate and complete

Learning outcome
The learner will:
2. Be able to achieve the specification parameters

Assessment criteria
The learner can:
2.1 Achieve the required process system specification through appropriate work methods/techniques

Learning outcome
The learner will:
3. Be able to maintain normal operating conditions

Assessment criteria
The learner can:
3.1 Ensure normal operating conditions by appropriate process systems throughput
3.2 Maintain the process system in the required condition
3.3 Take appropriate action to maintain process parameters
## Learning outcome
The learner will:
4. Be able to deal with faults and emergency situations

## Assessment criteria
The learner can:
4.1 Identify process system faults and abnormal operating conditions
4.2 Respond to emergency situations and take appropriate action to minimise their impact

## Learning outcome
The learner will:
5. Be able to monitor process systems

## Assessment criteria
The learner can:
5.1 Take samples and carry out relevant tests and comparative testing
5.2 Report deviations that are not within limits of own responsibility promptly

## Learning outcome
The learner will:
6. Be able to work to organisational and operational procedures

## Assessment criteria
The learner can:
6.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
6.2 Maintain the work area to be clean and hazard free
Unit 358  Remotely Control Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy. The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression. This unit should not be taken prior to taking ‘How to Remotely Control Integrated Process Systems Within a Processing Industries (Hydrocarbons) Environment.’

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.

An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.

During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove competence across the following items as appropriate to the workplace:

- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Reactions and changes should include chemical and physical properties. Emergency situations should include:
- process deviations
- extreme weather conditions
- spillages
- uncontrolled emissions.

Emergencies could be those relating to:
- people
- plant
- environment.

Process system throughput should include:
- increase/decrease throughput
- specified sequence
- recommended rate.

System faults should include:
- lack of services and supply
- variances in services
- mechanical and electrical breakdown
- process
- utility setting deviations.

Actions to be taken in the event of an emergency situation should include:
- quick shut down
- return process to within safe parameters
- operate standby equipment.

Information required could be:
- oral
- written
- equipment status
- process status
- handover reports.
Actions to take when a condition occurs, include:

- report
- record
- adjust.

Monitoring a system includes:

- flare and vent
- emergency shut down
- fire and gas.
Unit 359
How to Prepare and Shut Down Remote Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

UAN: T/601/7990
Level: Level 3
Credit value: 4
GLH: 36
Endorsement by a sector or regulatory body: This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will:
1. Know how to check the required information

Assessment criteria
The learner can:
1.1 Explain how to access and interpret:
   - shut down instructions
   - operational instructions
1.2 Identify the different sources of information
1.3 Explain how to interpret plant drawings and manuals

Learning outcome
The learner will:
2. Know the function and operation of plant and equipment

Assessment criteria
The learner can:
2.1 Describe the equipment and its function, as relevant to the plant
2.2 Describe the functioning of process control including instrumentation and process logic controllers
Learning outcome
The learner will:
3. Know how to shut down process systems

Assessment criteria
The learner can:
3.1 Explain how to input and set shut down settings, process variables and services
3.2 Explain how to isolate plant and utilities from operating sources
3.3 Identify the isolation devices and their methods of installation

Learning outcome
The learner will:
4. Know how to maintain safety

Assessment criteria
The learner can:
4.1 Identify real and potential shut down hazards
4.2 Explain the properties of purging media and its effects on systems
4.3 Describe the composition and properties of hydrocarbon feedstock and products
4.4 Identify all relevant sources of energy to prime movers

Learning outcome
The learner will:
5. Know how reactions to abnormal conditions affect the process system

Assessment criteria
The learner can:
5.1 Describe the effects of emergency shutdown control systems
5.2 Describe the effects of fire and gas control systems
<table>
<thead>
<tr>
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<td>6. Know how to minimise and deal with safety issues in the workplace</td>
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<td>• mitigate or reduce risks to as low as reasonably practicable (ALARP)</td>
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<td>6.2 Explain the methods and limitations of:</td>
</tr>
<tr>
<td>• depressurisation/pressurisation</td>
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<tr>
<td>• blowdown</td>
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<tr>
<td>• temperature</td>
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<tr>
<td>• relief systems</td>
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<td>• drains</td>
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<td>• flares</td>
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<td>• vents</td>
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<tr>
<td>The learner will:</td>
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<tr>
<td>7. Know how to work to organisational and operational procedures</td>
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<td>The learner can:</td>
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<td>7.1 Explain how to select, use and care for Personal Protective Equipment (PPE)</td>
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<td>7.2 Describe the implications of statutory and organisational requirements</td>
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<td>7.3 Explain how to interpret operational requirements</td>
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Unit 359 How to Prepare and Shut Down Remote Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

Supporting information

Guidance
This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.

Assessment Context
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant. An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent. During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.

The learner should prove knowledge of the following items as appropriate to the workplace:

- wells
- oil storage/discharge process
- gas process
- oil/gas process and export
- water injection
- metering
- utilities.

Safe Systems of Work must include processes or systems that incorporate:

- hazard identification
- risk assessment
- permit to work
- any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Personal Protective Equipment (PPE) should include:
- sight/hearing protection
- coveralls
- gloves
- footwear
- hard hats
- respirators.

Statutory requirements relate to documents such as Health and Safety at Work Act 1974 (HASAWA) and Control of Substances Hazardous to Health (COSHH).

Shut down instructions should be:
- oral
- written.

Operational instructions should include:
- sequence of shutdown
- recommended rate of shut down.

Shut down hazards should include:
- standby equipment
- operational
- vents
- noise
- heat.

Composition and properties of hydrocarbon feedstock and products should include:
- toxicity
- flammability
- specific gravity
- temperature.
### Unit 360
Prepare and Shut Down Remote Integrated Process Systems Within a Processing Industries Hydrocarbons Environment

<table>
<thead>
<tr>
<th>UAN:</th>
<th>F/601/7989</th>
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<tr>
<td>Level:</td>
<td>Level 3</td>
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<tr>
<td>Credit value:</td>
<td>4</td>
</tr>
<tr>
<td>GLH:</td>
<td>12</td>
</tr>
</tbody>
</table>

**Endorsement by a sector or regulatory body:**
This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

#### Learning outcome
The learner will:
1. Be able to prepare for shutdown

#### Assessment criteria
The learner can:
1.1 Obtain operational instructions
1.2 Ensure that all information supplied and recorded is accurate and complete
1.3 Determine shut down time and make appropriate preparations for shut down
1.4 Brief relevant personnel on shut down procedures

#### Learning outcome
The learner will:
2. Be able to shutdown process systems

#### Assessment criteria
The learner can:
2.1 Input and set shut down settings, process variables and services
2.2 Isolate plant and utilities from operating sources
2.3 Shut down the process system safely
### Learning outcome

The learner will:
3. Be able to minimise risks when shutting down

### Assessment criteria

The learner can:
3.1 Identify shut down hazards and protect against them
3.2 Monitor shut down and correct faults and problems as appropriate

### Learning outcome

The learner will:
4. Be able to work to organisational and operational procedures

### Assessment criteria

The learner can:
4.1 Work safely in accordance with operational requirements and associated Safe Systems of Work
Unit 360  
Prepare and Shut Down  
Remote Integrated Process Systems Within a Processing Industries Hydrocarbons Environment  

Supporting information  

Guidance  
This unit is subject to the requirements set out in the Cogent Assessment Strategy.  
The assumed pre-requisite is that the learner is likely to be an experienced operator who is seeking progression.  
This unit should not be taken prior to taking ‘How to Prepare and Shut Down Remote Integrated Process Systems Within a Processing Industries (Hydrocarbons) Environment.’  

Assessment Context  
There is a degree of overall autonomy and judgement required in this environment. Integrated process systems are complex pieces of equipment that have the potential to impact on other areas of the plant.  
An integrated process system could be a continuous or a batch process with a number of unit operations that are interdependent.  
During this work, the learner must take account of the relevant worksite operational requirements, procedures and safe working practices, as they apply to the learner.  
The learner should prove competence across the following items as appropriate to the workplace:  
• wells  
• oil storage/discharge process  
• gas process  
• oil/gas process and export  
• water injection  
• metering  
• utilities.  

Safe Systems of Work must include processes or systems that incorporate:  
• hazard identification  
• risk assessment  
• permit to work  
• any other associated systems.
Operational requirements may include:
- policies
- procedures
- instructions
- codes of practice
- standards
- schedules.

Shut down hazards could include the following, as applicable to the workplace:
- standby equipment
- operational
- vents
- noise
- heat.
Links to other qualifications

These qualifications have connections to the:

- Level 2 Certificate in Process Engineering Maintenance *(0640-20)*
- Level 2 Diploma in Jetty Operations *(0640-21)*
- Level 2 Diploma in Bulk Liquid Operations *(0640-22)*
- Level 3 Diploma in Process Engineering Maintenance *(0640-30)*
- Level 3 Diploma in Jetty Operations *(0640-31)*
- Level 3 Diploma in Downstream Control Room Operations *(0640-34)*
- Level 3 Diploma in Downstream Field Operations *(0640-35)*
Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the Centres and Training Providers homepage on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve ‘approved centre’ status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of learners
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.
**Access to Assessment & Qualifications** provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for learners who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden**: how to register and certificate learners on line
- **Qualifications and Credit Framework (QCF)**: general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events**: dates and information on the latest Centre events
- **Online assessment**: how to register for e-assessments.
City & Guilds
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www.cityandguilds.com
### Useful contacts

**UK learners**
- General qualification information
  - T: +44 (0)844 543 0033
  - E: learnersupport@cityandguilds.com

**International learners**
- General qualification information
  - T: +44 (0)844 543 0033
  - F: +44 (0)20 7294 2413
  - E: intcg@cityandguilds.com

**Centres**
- Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results
  - T: +44 (0)844 543 0000
  - F: +44 (0)20 7294 2413
  - E: centresupport@cityandguilds.com

**Single subject qualifications**
- Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change
  - T: +44 (0)844 543 0000
  - F: +44 (0)20 7294 2413
  - F: +44 (0)20 7294 2404 (BB forms)
  - E: singlesubjects@cityandguilds.com

**International awards**
- Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports
  - T: +44 (0)844 543 0000
  - F: +44 (0)20 7294 2413
  - E: intops@cityandguilds.com

**Walled Garden**
- Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems
  - T: +44 (0)844 543 0000
  - F: +44 (0)20 7294 2413
  - E: walledgarden@cityandguilds.com

**Employer**
- Employer solutions, Mapping, Accreditation, Development Skills, Consultancy
  - T: +44 (0)121 503 8993
  - E: business@cityandguilds.com

**Publications**
- Logbooks, Centre documents, Forms, Free literature
  - T: +44 (0)844 543 0000
  - F: +44 (0)20 7294 2413

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*If you have a complaint, or any suggestions for improvement about any of the services that we provide, email:* feedbackandcomplaints@cityandguilds.com
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City & Guilds Group
The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Licence to Practice (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

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