National Occupational Standards for Processing Operations: Hydrocarbons

November 2006
## Record of Changes to Standards

<table>
<thead>
<tr>
<th>Rev No</th>
<th>Amendment &amp; Date</th>
<th>Section/Page</th>
<th>Amended by:</th>
<th>Checked by:</th>
<th>Approved by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>November 2006 – new NOS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>January 2008 - Updated to new OPITO logo</td>
<td>All</td>
<td>T. Wilson</td>
<td>P. Crowther</td>
<td>P. Crowther</td>
</tr>
<tr>
<td>2</td>
<td>March 2013 – all of the NOS for Processing Operations: Hydrocarbons have been combined into one new document. Details of qualifications structures included.</td>
<td>All</td>
<td>H Sanderson</td>
<td>M Foo</td>
<td>P Lammiman</td>
</tr>
</tbody>
</table>

Any amendments made to this standard by OPITO will be recorded above.
National Occupational Standards for Processing Operations: Hydrocarbons

Content

Qualification Structures .................................................................................................................. 4
NOS - Unit Titles ............................................................................................................................ 4
List of Systems (Scope) and Processes .......................................................................................... 5
Requirements for Systems (Scope) ............................................................................................... 6
Level 1 SVQ/NVQ Processing Operations: Hydrocarbons ....................................................... 7
Level 2 SVQ/NVQ Processing Operations: Hydrocarbons ....................................................... 8
Level 3 SVQ/NVQ Processing Operations: Hydrocarbons ....................................................... 9
Level 3 SVQ/NVQ Processing Operations: Hydrocarbons (Control Rooms) ....................... 9

National Occupational Standards - Units .................................................................................... 11
Unit C1: Contribute to the Health and Safety of the Working Environment ........................... 11
Unit C2: Monitor and Maintain Health, Environment and Safety Systems ............................ 14
Unit C3: Assist with the Control of Emergencies and Critical Situations .............................. 17
Unit C4: Contribute to the Control of Emergencies and Critical Situations .......................... 19
Unit C5: Control Emergencies and Critical Situations ............................................................. 21
Unit C6: Establish and Maintain Effective Relationships with Others .................................... 25
Unit C7: Create, Maintain and Enhance Productive Working Relationships .......................... 28
Unit PT1.1: Start Up and Shut Down a Process System ............................................................ 32
Unit PT1.2: Monitor a Process System ....................................................................................... 34
Unit PT2.1: Prepare and Start Up Process Systems ................................................................. 36
Unit PT2.1: Prepare and Start Up Process Systems ................................................................. 39
Unit PT2.2: Operate and Monitor Process Systems ................................................................. 42
Unit PT2.3: Prepare and Shut Down Process Systems ............................................................. 45
Unit PT2.4: Isolate and De-isolate Process Plant and Equipment ............................................. 47
Unit PT3.1: Prepare and Start Up Integrated Process Systems ............................................... 51
Unit PT3.2: Operate and Monitor Integrated Process Systems .............................................. 54
Unit PT3.3: Prepare and Shut Down Integrated Process Systems .......................................... 57
Unit PT3.4: Isolate and Reinstate Process Plant and Equipment .............................................. 59
Unit PTC3.1: Prepare Integrated Process Systems for Remote Control Operation ................ 63
Unit PTC3.2: Remotely Control Integrated Process Systems .................................................. 66
Unit PTC3.3: Prepare and Shut Down Remote Integrated Process Systems ......................... 69
Unit PTC3.4: Facilitate the Maintenance of Process Plant and Equipment ............................. 72
# Qualification Structures

## NOS - Unit Titles

<table>
<thead>
<tr>
<th>NOS - Unit No</th>
<th>NOS - Unit Title</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 3 (Control Room)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1:</td>
<td>Contribute to the Health and Safety of the Working Environment</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2:</td>
<td>Monitor and Maintain Health, Environment and Safety Systems</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C3:</td>
<td>Assist with the Control of Emergencies and Critical Situations</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C4:</td>
<td>Contribute to the Control of Emergencies and Critical Situations</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5:</td>
<td>Control Emergencies and Critical Situations</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C6:</td>
<td>Establish and Maintain Effective Relationships with Others</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C7:</td>
<td>Create, Maintain and Enhance Productive Working Relationships</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PT1.1:</td>
<td>Start Up and Shut Down a Process System</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT1.2:</td>
<td>Monitor a Process System</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT2.1:</td>
<td>Prepare and Start Up Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT2.2:</td>
<td>Operate and Monitor Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT2.3:</td>
<td>Prepare and Shut Down Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT2.4:</td>
<td>Isolate and De-isolate Process Plant and Equipment</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT3.1:</td>
<td>Prepare and Start Up Integrated Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT3.2:</td>
<td>Operate and Monitor Integrated Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT3.3:</td>
<td>Prepare and Shut Down Integrated Process Systems</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PT3.4:</td>
<td>Isolate And Reinstate Process Plant and Equipment</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PTC3.2:</td>
<td>Remotely Control Integrated Process Systems</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PTC3.3:</td>
<td>Prepare and Shut Down Remote Integrated Process Systems</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PTC3.4:</td>
<td>Facilitate The Maintenance Of Process Plant and Equipment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
## List of Systems (Scope) and Processes

<table>
<thead>
<tr>
<th>Systems (Scope)</th>
<th>Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wells</td>
<td>1.1 Operating Wells</td>
</tr>
<tr>
<td></td>
<td>1.2 Managing Well Integrity</td>
</tr>
<tr>
<td>2. Oil Storage/Discharge Process</td>
<td>2.1 Discharging to Tankers</td>
</tr>
<tr>
<td></td>
<td>2.2 Managing Storage Tanks</td>
</tr>
<tr>
<td>3. Gas Process</td>
<td>3.1 Compressing Hydrocarbon Gas</td>
</tr>
<tr>
<td></td>
<td>3.2 Dehydrating Gas</td>
</tr>
<tr>
<td></td>
<td>3.3 Fractionating Gas</td>
</tr>
<tr>
<td></td>
<td>3.4 Providing Fuel Gas</td>
</tr>
<tr>
<td></td>
<td>3.5 Recovering NGL</td>
</tr>
<tr>
<td></td>
<td>3.6 Removing Gaseous Impurities (CO2, H2S)</td>
</tr>
<tr>
<td></td>
<td>3.7 Separating Liquids from Incoming Gas</td>
</tr>
<tr>
<td>4. Oil/Gas Process and Export</td>
<td>4.1 Disposing of Produced Water</td>
</tr>
<tr>
<td></td>
<td>4.2 Operating Drain and Vent System</td>
</tr>
<tr>
<td></td>
<td>4.3 Pipeline Pigging Operations</td>
</tr>
<tr>
<td></td>
<td>4.4 Producing Stabilised Hydrocarbon Fluid</td>
</tr>
<tr>
<td></td>
<td>4.5 Separating Well Products</td>
</tr>
<tr>
<td></td>
<td>4.6 Export</td>
</tr>
<tr>
<td>5. Water Injection</td>
<td>5.1 De-aerating Water</td>
</tr>
<tr>
<td></td>
<td>5.2 Filtering Water</td>
</tr>
<tr>
<td></td>
<td>5.3 Injecting Water</td>
</tr>
<tr>
<td>6. Metering</td>
<td>6.1 Metering Condensate and Oil to Fiscal Standards</td>
</tr>
<tr>
<td></td>
<td>6.2 Metering Gas to Fiscal Standards</td>
</tr>
<tr>
<td></td>
<td>6.3 Allocation Metering</td>
</tr>
<tr>
<td>7. Utilities</td>
<td>7.1 Disposing of Waste Water</td>
</tr>
<tr>
<td></td>
<td>7.2 Generating Electrical Power</td>
</tr>
<tr>
<td></td>
<td>7.3 Generating Nitrogen</td>
</tr>
<tr>
<td></td>
<td>7.4 Operating Chemical Injection</td>
</tr>
<tr>
<td></td>
<td>7.5 Operating Gas Turbines, Steam Turbines &amp; Diesel Prime Movers</td>
</tr>
<tr>
<td></td>
<td>7.6 Providing Chlorine</td>
</tr>
<tr>
<td></td>
<td>7.7 Providing Diesel</td>
</tr>
<tr>
<td></td>
<td>7.8 Providing Heat (Hot Oil and/or Hot Water)</td>
</tr>
<tr>
<td></td>
<td>7.9 Providing Heating, Ventilation and Air Conditioning (HVAC)</td>
</tr>
<tr>
<td></td>
<td>7.10 Providing Instrument and Service Air</td>
</tr>
<tr>
<td></td>
<td>7.11 Providing Steam</td>
</tr>
<tr>
<td></td>
<td>7.12 Providing Water</td>
</tr>
<tr>
<td></td>
<td>7.13 Testing Fire and Gas and ESD Systems</td>
</tr>
</tbody>
</table>
## Requirements for Systems (Scope)

<table>
<thead>
<tr>
<th>System (scope)</th>
<th>No of processes</th>
<th>No to be assessed</th>
<th>Performance evidence (incl knowledge)</th>
<th>Knowledge evidence only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Wells</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2 Oil Storage/Discharge Process</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3 Gas Process</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4 Oil/Gas Process and Export</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>5 Water Injection</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6 Metering</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7 Utilities</td>
<td>13</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
Level 1 SVQ/NVQ Processing Operations: Hydrocarbons

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribute to the Health and Safety of the Working Environment</td>
<td>C1</td>
</tr>
<tr>
<td>Assist with the Control of Emergencies and Critical Situations</td>
<td>C3</td>
</tr>
<tr>
<td>Establish and Maintain Effective Working Relationships with Others</td>
<td>C6</td>
</tr>
<tr>
<td>Start Up and Shut Down a Process System</td>
<td>PT1.1</td>
</tr>
<tr>
<td>Monitor a Process System</td>
<td>PT1.2</td>
</tr>
</tbody>
</table>

Candidates for the Level 1 must prove **generic competence** by achieving all non-technical units (C1, C3 and C6).

Candidates for the Level 1 must prove **technical competence** by achieving the 2 technical units PT1.1, PT1.2. These units must be achieved through Performance Evidence (including Knowledge) and by satisfying the requirements of **FOUR** of the Processes - with no more than two Processes coming from any one System.
Level 2 SVQ/NVQ Processing Operations: Hydrocarbons

| Contribute to the Health and Safety of the Working Environment | C1 |
| Contribute to the Control of Emergencies and Critical Situations | C4 |
| Establish and Maintain Effective Working Relationships with Others | C6 |
| Prepare and Start Up Process Systems | PT2.1 |
| Operate and Monitor Process Systems | PT2.2 |
| Prepare and Shut Down Process Systems | PT2.3 |
| Isolate and Re-isolate Process Plant and Equipment | PT2.4 |

Candidates for the Level 2 must prove generic competence by achieving all non-technical units (C1, C4 and C6).

Candidates for the Level 2 must prove technical competence by achieving the 4 technical units PT2.1, PT2.2, PT2.3 and PT2.4. These units must be achieved by satisfying the requirements of THREE out of SEVEN System (Scope) items. To ensure the requisite amount of competence in working with Hydrocarbons, candidates must demonstrate their competence in at least 2 of the following 3 System (Scope) items:

- 2 - Oil Storage/Discharge Process
- 3 - Gas Process
- 4 - Oil & Gas Process and Export

Examples:

- Candidate A can choose to prove competence over System (Scope) items 2, 4 and 7
- Candidate B can choose to prove competence over System (Scope) items 1, 2 and 3
- Candidate C can choose to prove competence over System (Scope) items 2, 3 and 4

However;

- Candidate B CANNOT choose to prove competence over System (Scope) items 1, 2 and 7 (because this does not ensure the required amount competence in Hydrocarbons).
# Level 3 SVQ/NVQ Processing Operations: Hydrocarbons

<table>
<thead>
<tr>
<th>Task</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor and Maintain Health, Environment and Safety Systems</td>
<td>C2</td>
</tr>
<tr>
<td>Control of Emergencies and Critical Situations</td>
<td>C5</td>
</tr>
<tr>
<td>Create, Maintain and Enhance Productive Working Relationships with Others</td>
<td>C7</td>
</tr>
<tr>
<td>Prepare and Start Up Integrated Process Systems</td>
<td>PT3.1</td>
</tr>
<tr>
<td>Operate and Monitor Integrated Process Systems</td>
<td>PT3.2</td>
</tr>
<tr>
<td>Prepare and Shut Down Integrated Process Systems</td>
<td>PT3.3</td>
</tr>
<tr>
<td>Isolate and Reinstate Process Plant and Equipment</td>
<td>PT3.4</td>
</tr>
</tbody>
</table>

# Level 3 SVQ/NVQ Processing Operations: Hydrocarbons (Control Rooms)

<table>
<thead>
<tr>
<th>Task</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor and Maintain Health, Environment and Safety Systems</td>
<td>C2</td>
</tr>
<tr>
<td>Control of Emergencies and Critical Situations</td>
<td>C5</td>
</tr>
<tr>
<td>Create, Maintain and Enhance Productive Working Relationships with Others</td>
<td>C7</td>
</tr>
<tr>
<td>Prepare Integrated Process Systems for Remote Control Operations</td>
<td>PTC3.1</td>
</tr>
<tr>
<td>Remotely Control Integrated Process Systems</td>
<td>PTC3.2</td>
</tr>
<tr>
<td>Prepare and Shut Down Remote Integrated Process Systems</td>
<td>PTC3.3</td>
</tr>
<tr>
<td>Facilitate the Maintenance of Process Plant and Equipment</td>
<td>PTC3.4</td>
</tr>
</tbody>
</table>
Candidates for the Level 3 must prove **generic competence** by achieving all non-technical units (C2, C5 and C7).

Candidates for the Level 3 must prove **technical competence** by achieving the 4 technical units:

- Level 3 *(Outside Technician)* – PT3.1, PT3.2, PT3.3 and PT3.4
- Level 3 *(Control Room)* – PTC3.1, PTC3.2, PTC3.3 and PTC3.4

The above units must be achieved by satisfying the requirements of **FOUR out of SEVEN System (Scope) items.** To ensure the requisite amount of competence in working with Hydrocarbons candidates must demonstrate their competence in **at least 2** of the following 3 Scope items:

- 2 - Oil Storage/Discharge Process
- 3 - Gas Process
- 4 - Oil & Gas Process and Export

Examples:

- Candidate A *can* choose to prove competence over Scope items 2, 4, 5 and 7
- Candidate B *can* choose to prove competence over Scope items 1, 2, 3 and 6
- Candidate C *can* choose to prove competence over Scope items 2, 3, 4 and 5

However;

- Candidate B **CANNOT** choose to prove competence over Scope items 1, 2, 6 and 7 (because this does not ensure the required amount competence in Hydrocarbons).
National Occupational Standards - Units

Unit C1: Contribute to the Health and Safety of the Working Environment

This unit is about contributing to the Health and Safety of your working environment.

C1.1 Conform to all Relevant Requirements

C1.2 Monitor and Maintain the Health and Safety of Self and Others

C1.3 Monitor and Maintain Pollution Control Measures

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. relevant policies, procedures, instructions, codes of practice, standards, schedules)
Element C1.1: Conform to all Relevant Requirements

Performance Statements

In achieving this unit you must have:

1. correctly selected and used the relevant PPE
2. correctly used fire protection, first aid and survival equipment
3. adhered to all procedures relevant to fire, accident and other emergency
4. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to obtain and interpret information on safety
2. your own responsibilities as they relate to Organisational Safety Policy, Workplace Safety Policy, Evacuation Procedures, Fire Procedures.

Element C1.2: Monitor and Maintain the Health and Safety of Self and Others

Performance Statements

In achieving this unit you must have:

1. ensured that the area within your own personal responsibility is maintained, clean and hazard free
2. positioned and used relevant safety equipment (including machine guards) safely and securely
3. correctly identified and reported unsafe equipment and potential danger
4. correctly selected and used relevant PPE
5. correctly handled all materials, tools and equipment
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to implement workplace reporting procedures
2. how to access fire protection, first aid and survival equipment
3. how to deal with materials (e.g. flammable, toxic, corrosive, explosive, cryogenic, radioactive)
4. your own responsibilities as they relate to Organisational Safety Policy
5. how to use safe lifting and handling techniques
Element C1.3: Monitor and Maintain Pollution Control Measures

Performance Statements

In achieving this unit you must have:

1. monitored and controlled the discharges (liquid and gas) from your area to within prescribed limits
2. correctly identified and reported unplanned discharges (liquid and gas)
3. correctly selected and used PPE
4. correctly identified, packaged, labelled and transferred materials for disposal
5. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to deal with materials (e.g. flammable, toxic, corrosive, explosive, cryogenic, radioactive)
2. your own responsibilities as they relate to Organisational Safety Policy; the Classification, Packaging and Labelling of Dangerous Substances Regulations; Environmental Protection Act
Unit C2: Monitor and Maintain Health, Environment and Safety Systems

This unit is about monitoring and maintaining Health and Safety systems and understanding the Safe Systems of Work requirements.

C2.1 Administer the Safe Systems of Work Process

C2.2 Maintain the Necessary Conditions for an Effective and Safe Working Environment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- Safe working practices appropriate to the location
- Emergency procedures of plant
- Handover and reporting procedures
- Plant layout and its connection with other systems
- Functioning of process control including instrumentation and logic
- Normal plant conditions and the tolerances within which they operate
- Methods of depressurisation/pressurisation (to include blowdown and temperature)
- Sources of information and interpretation of drawings and manuals regarding the Plant
- All relevant sources of energy to prime movers
- Blowdown and relief systems and their limitations
- Properties of purging media
- Composition and properties of feedstock (to include toxicity, flammability, S.G. and temperature)
- Procedures for entry into confined spaces
- Drain systems associated with the plant and their limitations
- Flare/Vent systems associated with the plant and their limitations (to include capacity and radiation)
- Effects of Emergency Shutdown control system
- Effects of Fire and Gas control system
- Effects of loss of any utility and its reinstatement
- Consequences of emissions to the environment
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. policies, procedures, instructions, codes of practice, standards, schedules)

**Element C2.1: Administer the Safe Systems of Work Process**

**Performance Statements**

In achieving this unit you must have:

1. consulted and sought advice on permit to work requirements from relevant personnel
2. verified information received and given appropriate advice based on that information
3. effectively disseminated requirements relating to work activities to relevant personnel
4. correctly identified, noted and reacted to factors likely to affect operations
5. effectively and correctly recorded all relevant operations and services information completely
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

**Knowledge and Understanding**

You must know and understand:

1. how to interpret and implement organisational policy, practices and procedures
2. how to interpret and implement health, environment, hygiene and safety legislation
3. how to interpret and implement employment and other legal requirements; industry specific legislation; approved codes of practice; customer requirements
4. how to deal with differing types of communication (to include oral, written, computer based, visual/pictorial)
5. how to deal with different types of information (to include work activity briefing provided to others; clarification of operational instructions; work activity recording and delegation to others; handovers)
Element C2.2: Maintain the Necessary Conditions for an Effective and Safe Working Environment

Performance Statements

In achieving this unit you must have:

1. determined if the working conditions and the use of resources satisfy current legislation
2. effectively maintained all relevant maintenance procedures
3. effectively maintained all relevant Health, Environment and Safety procedures
4. dealt effectively with accidents and incidents
5. accurately identified and taken appropriate action on potential or actual breaches of requirements
6. identified and made appropriate recommendations to relevant personnel on improving conditions
7. effectively maintained appropriate and clear (written and computer based) records
8. effectively communicated with all relevant personnel
9. taken appropriate action to improve system efficiency
10. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to interpret and maintain conditions relating to the work environment, equipment, materials, procedures, special needs
2. how to interpret and implement relevant legislation (e.g. health, environment, hygiene and safety legislation; industry specific legislation; approved codes of practice; organisational policies, practices and procedures; environmental legislation)
3. how to access and interface with the relevant personnel (to include line managers, staff representatives, colleagues, customers, suppliers, those for whom you have responsibility)
Unit C3: Assist with the Control of Emergencies and Critical Situations

This unit is about assisting with the control of emergencies and critical situations.

C3.1 Assist with the Control of Critical Situations

C3.2 React to Emergencies in Other Areas

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. policies, procedures, instructions, codes of practice, standards, schedules)
- Emergency procedures for the plant
- The types of alarms and signals and how they are used in a critical situation (to include audible; warning gestures; oral warnings; installation specific fixed system)
- Critical situations (to include operational difficulties; extreme weather; equipment failure; leaks; fires)
- How to give and receive understandable and appropriate information (to include oral; telephone; public address system; radio; hand signals)
Element C3.1: Assist with the Control of Critical Situations

Performance Statements

In achieving this unit you must have:

1. identified developing and existing critical situations
2. activated all relevant alarms and taken actions appropriate to the situation
3. effectively monitored the situation and minimised risks to personnel, process, plant and equipment
4. reported the critical situation correctly
5. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. what constitutes a critical situation
2. how to identify developing and existing critical situations
3. the actions required to alleviate critical situations (to include containing; rectifying; reporting (both oral and written); recording)
4. how to minimise risks to personnel, process, plant and equipment

Element C3.2: React to Emergencies in Other Areas

Performance Statements

In achieving this unit you must have:

1. identified developing and existing critical situations
2. activated all relevant alarms and taken actions appropriate to the situation
3. reacted appropriately to information received
4. taken immediate action to make the situation safe
5. minimised risks to personnel, process, plant and equipment
6. worked safely in accordance with operational instructions

Knowledge and Understanding

You must know and understand:

See Unit-wide Knowledge
Unit C4: Contribute to the Control of Emergencies and Critical Situations

This unit is about contributing to the control of emergencies and critical situations.

C4.1 Contribute to the Control of Critical Situations

C4.2 Respond to Emergencies in Other Areas

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. relevant policies, procedures, instructions, codes of practice, standards, schedules)
- Emergency procedures relevant to the workplace
Element C4.1: Contribute to the Control of Critical Situations

Performance Statements

In achieving this unit you must have:

1. identified developing and existing critical situations
2. activated all relevant alarms and taken actions appropriate to the situation
3. effectively monitored the situation and minimised risks to personnel, process, plant and equipment
4. reported the critical situation correctly
5. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the operation of and potential implications of Emergency Shutdown systems
2. the principles and operation of Fire and Gas control systems
3. the internals of equipment and their function and operation

Element C4.2: Respond to Emergencies in Other Areas

Performance Statements

In achieving this unit you must have:

1. identified developing and existing critical situations
2. activated all relevant alarms and taken actions appropriate to the situation
3. reacted appropriately to information received
4. taken immediate action to make the situation safe
5. minimised risks to personnel, process, plant and equipment
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the installation/site layout
2. the effect and potential implications of loss of any utility and its reinstatement
3. how to react appropriately (e.g. make safe; isolate; shutdown; evacuate the work area)
Unit C5: Control Emergencies and Critical Situations

This unit is about controlling emergencies and critical situations.

C5.1 Maintain a State of Readiness

C5.2 Control Critical Situations

C5.3 Coordinate the Response to Emergencies

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Emergency procedures for the installation
- Plant layout and its integration with other complex processes and systems
- The internals of equipment and their function and operation
- Methods and consequences of isolation and depressurisation
- Functioning of remote process control (to include instrumentation and logic)
- Normal operating parameters and their tolerances
- How to access and interpret drawings and manuals regarding the plant
• The composition and properties of produced fluids and gases (to include toxicity, flammability, specific gravity (SG), temperature)
• The reactions taking place and the effect of changes to the physical and chemical properties
• The effects of changes in ambient conditions on plant operation
• The principles and effect of Hydrocarbon hydrate formation, prevention and dispersion
• The operation of and potential implications of the ESD control systems
• The operation of and potential implications of the Fire and Gas control systems
• The effect and potential implications of loss of any system and its reinstatement
• Consequences of emissions to the environment

Element C5.1: Maintain a State Of Readiness

Performance Statements

In achieving this unit you must have:

1. effectively accessed current emergency procedures and reported all anomalies
2. identified all conditions which may affect the emergency response
3. effectively handed over all safety critical information
4. correctly taken part in drills and exercises
5. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret the status of the appropriate equipment and systems (to include detection; protection; communications; evacuation)
2. how to access and interpret the status of operations and simultaneous operations
3. how to access and interpret information on weather conditions
4. how to access and interpret information on the availability of key emergency response personnel
Element C5.2: Control Critical Situations

Performance Statements

In achieving this unit you must have:

1. identified developing and existing critical situations
2. activated all relevant alarms and taken actions appropriate to the situation
3. effectively monitored the situation and minimised risks to personnel, process, plant and equipment
4. reported the critical situation correctly
5. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the operation of and potential implications of the Emergency Shutdown control systems
2. the operation of and potential implications of the Fire and Gas control systems
Element C5.3: Coordinate the Response to Emergencies

Performance Statements

In achieving this unit you must have:

1. accurately identified and immediately taken the actions required to make the situation safe
2. activated all relevant alarms
3. effectively communicated all relevant information and instructions
4. clarified and acted upon information received
5. recorded critical information
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to react appropriately (to include make safe; isolate; shutdown; evacuate the work area; informing connecting installations and others; do nothing; activate internal emergency response teams; inform duty personnel; inform adjacent facilities; activate ESD; account for people)
2. those who must be contacted and how to contact them
Unit C6: Establish and Maintain Effective Relationships with Others

This unit is about establishing and maintaining effective working relationships.

C6.1 Establish and Maintain Effective Working Relationships with Others

C6.2 Establish and Maintain Effective Communications with Others

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H2S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Others** must include co-workers, supervisors, managers, other company employees, third parties and visitors
- **Situations** must include informal meetings, formal meetings, normal work situations, team briefings, contingency situations, handovers
- **Information** must include oral, written, visual
- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Relevant policies, procedures, instructions, codes of practice, standards, schedules)
Element C6.1: Establish and Maintain Effective Working Relationships with Others

Performance Statements

In achieving this unit you must have:

1. treat **others** in a manner which promotes and maintains goodwill and is appropriate to the **situation**
2. promptly and willingly meet reasonable requests and queries from others
3. provide prompt, clear and accurate **information** to others
4. offer additional support when others have difficulties and seek help where necessary
5. promptly report unresolved breakdowns in working relationships to an appropriate person
6. worked safely in accordance with operational requirements and associated **Safe Systems of Work**

Knowledge and Understanding

You must know and understand:

1. how to treat others in a manner which promotes and maintains goodwill
2. the requirements of workplace practices relating to visitors
3. who to refer visitors to when they require information that is not within the individuals job responsibility
4. appropriate responses to make, when dealing with work related difficulties or breakdowns in relationships
5. workplace reporting procedures
6. emergency procedures
Element C6.2: Establish and Maintain Effective Communications with Others

Performance Statements

In achieving this unit you must have:

1. use a style of communication (language and terminology) that is clear, concise and accurate and suited to the workplace and the situation
2. follow procedures and act promptly, when dealing with communications.
3. promptly seek clarification, when difficulties are experienced interpreting communications
4. record relevant information accurately and legibly
5. relay information (that is accurate and complete) about current operational status, to and from relevant personnel at handover stage
6. leave the work area clean and free of hazards
7. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. who to seek clarification from when communications cannot be clearly understood
2. where to obtain operational policies, procedures, instructions, code of practice, standards and schedules from, and how to implement them
3. the importance of passing on information that is accurate and complete, and the need at times, to clarify information that is received
4. methods for passing on accurate and complete information
5. the nature of work area hazards, and ways to control and/or minimise risks
Unit C7: Create, Maintain and Enhance Productive Working Relationships

This unit is about creating, maintaining and enhancing productive working relationships with your line managers, staff representatives, colleagues, customers and suppliers.

C7.1 Create and Enhance Productive Working Relationships

C7.2 Enhance Productive Working Relationships with One's Immediate Manager

C7.3 Carry Out Work Handovers

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items as appropriate to the workplace and Evidence Specification:

- individual operation
- team operation
- consideration of H₂S and other toxic substances
- maintaining communication
- reacting to on-site emergencies

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
Element C7.1: Create and Enhance Productive Working Relationships

Performance Statements

In achieving this unit you must have:

1. made clear efforts to establish and maintain productive working relationships
2. provided opportunities to discuss work-related matters with relevant people
3. provided opportunities to discuss personal problems
4. provided useful advice within limits of own responsibility and expertise
5. referred individuals to specialists where appropriate
6. dealt effectively with differences
7. effectively communicated changes in operational requirements
8. encouraged individuals to offer ideas and views and afford them due recognition
9. provide clear reasons to individuals where ideas and views are not progressed
10. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the main components of productive working relationships
2. the limits of your own responsibility and expertise
3. how to deal with differences
4. how to communicate effectively
5. how to progress ideas and views on behalf of individuals
Element C7.2: Enhance Productive Working Relationships with One’s Immediate Manager

Performance Statements

In achieving this unit you must have:

1. effectively communicated all relevant information on activities, progress, results and achievements to your immediate manager
2. effectively sought information and advice from your immediate manager
3. effectively presented clear proposals
4. accurately analysed rejected proposals and, where appropriate, put forward alternatives
5. made clear efforts to avoid damaging your relationship with your immediate manager where disagreements occur
6. sought ways of improving the relationship with your immediate manager
7. effectively carried out your job role
8. worked safely and in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. what your job role is and the limits of your responsibilities
2. what your immediate manager’s job role is and the limits of his/her responsibilities
3. how to present proposals and analyse results of discussions of those proposals
4. how to avoid damaging your working relationships
5. how to improve your working relationships
Element C7.3: Carry Out Work Handovers

Performance Statements

In achieving this unit you must have:

1. effectively recorded all relevant information
2. ensured that information given to you on current operational status is accurate and complete
3. ensured that information given by you on current operational status is accurate and complete
4. effectively communicated all relevant operating instructions
5. left your work area clean and hazard free
6. worked safely and in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to work with and within the Safe Systems of Work system
2. how to identify/control/minimise work area hazards and reduce risks to ALARP
3. the relevant personnel who are to give/receive information to/from you
Unit PT1.1: Start Up and Shut Down a Process System

This unit is about starting up and shutting down a process system.

PT1.1 Prepare and Start Up a Process System

PT1.2 Prepare and Shut Down a Process System

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- How and when to deal with other people (to include co-workers, supervisors, managers, workers of other disciplines)
Element PT1.1.1  Prepare and Start Up a Process System

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instruction
2. accurately identified and reported any difficulties with the instructions to the appropriate personnel
3. correctly prepared a process system for start-up
4. correctly started up a process system
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to identify, minimise and control real and potential hazards (to include spillages, uncontrolled emissions, consideration of H₂S and other toxic substances, extreme weather conditions)
2. the actions to take in the event of a work area hazard

Element PT1.1.2  Prepare and Shut Down a Process System

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instruction
2. accurately identified and reported any difficulties with the instructions to the appropriate personnel
3. correctly prepared a process system for shut-down
4. correctly shut down a process system
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to identify, minimise and control real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat, cold)
2. what the possible preparations are (to include informing relevant personnel, continued running of the remainder of the plant, valve and equipment settings)
Unit PT1.2: Monitor a Process System

This unit is about monitoring a process system to ensure a steady state condition.

PT1.2.1 Prepare to Monitor a Process System

PT1.2.2 Carry Out Process System Monitoring

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
Element PT1.2.1  Prepare to Monitor a Process System

Performance Statements

In achieving this unit you must have:

1. effectively obtained monitoring instructions
2. accurately identified and correctly reported any difficulties with the instructions
3. correctly prepared to monitor the process system
4. ensured that information supplied and recorded is accurate, complete and legible
5. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret monitoring instructions
2. how to identify difficulties
3. who you should report any difficulties to
4. how to deal effectively with oral and written information

Element PT1.2.2  Carry Out Process System Monitoring

Performance Statements

In achieving this unit you must have:

1. effectively maintained the process system in the required steady state
2. accurately identified and rectified faults and problems
3. correctly taken samples and carried out relevant tests
4. promptly reported deviations outwith acceptable limits and/or your responsibility
5. ensured that information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. what steady state conditions are and how they are achieved
2. limits of own responsibility
3. how to maintain the integrity of the plant
4. types and causes of deviations and the relevant actions to take when they occur
5. how to deal with oral and written information
Unit PT2.1: Prepare and Start Up Process Systems

This unit is about preparing and starting up process systems for operation.

PT2.1.1 Prepare to Carry Out a Production Process

PT2.1.2 Start Up Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
Element PT2.1.1 Prepare to Carry Out a Production Process

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instruction
2. effectively organised work of self and others where appropriate
3. effectively briefed relevant personnel
4. accurately identified difficulties with relevant parts of the Safe Systems of Work system and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. work area hazards (to include spillages, uncontrolled emissions, H₂S and other toxic substances, extreme weather conditions)
2. plant layout and its connection with other systems
3. how to access and interpret drawings and manuals regarding the plant
4. the effects of changes in ambient conditions on plant operation
5. who to deal with (to include co-workers, supervisors, managers, workers of other disciplines)
6. how to work with and within the Safe Systems of Work system
Element PT2.1.2  Start Up Process Systems

Performance Statements

In achieving this unit you must have:

1. correctly prepared plant and utilities  
2. effectively started up the process system  
3. accurately identified faults and taken appropriate action  
4. facilitated optimum processing  
5. ensured that all information supplied and recorded is accurate, complete and legible  
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the limits of your own responsibilities  
2. how to identify faults (to include damage, wear, malfunction, process deviations, service defects)  
3. the appropriate action to take on identification of faults in the plant and utilities  
4. how to achieve optimum processing
Unit PT2.1: Prepare and Start Up Process Systems

This unit is about preparing and starting up process systems for operation.

PT2.1.1 Prepare To Carry Out a Production Process

PT2.1.2 Start Up Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
Element PT2.1.1  Prepare to Carry Out a Production Process

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instruction
2. effectively organised work of self and others where appropriate
3. effectively briefed relevant personnel
4. accurately identified difficulties with relevant parts of the Safe Systems of Work system and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. work area hazards (to include spillages, uncontrolled emissions, H₂S and other toxic substances, extreme weather conditions)
2. plant layout and its connection with other systems
3. how to access and interpret drawings and manuals regarding the plant
4. the effects of changes in ambient conditions on plant operation
5. who to deal with (to include co-workers, supervisors, managers, workers of other disciplines)
6. how to work with and within the Safe Systems of Work system
Element PT2.1.2 Start Up Process Systems

Performance Statements

In achieving this unit you must have:

1. correctly prepared plant and utilities
2. effectively started up the process system
3. accurately identified faults and taken appropriate action
4. facilitated optimum processing
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the limits of your own responsibilities
2. how to identify faults (to include damage, wear, malfunction, process deviations, service defects)
3. the appropriate action to take on identification of faults in the plant and utilities
4. how to achieve optimum processing
Unit PT2.2: Operate and Monitor Process Systems

This unit is about operating and monitoring process systems.

PT2.2.1 Operate Process Systems

PT2.2.2 Monitor Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or 'systems') as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Normal plant conditions and the tolerances within which they operate
- Sources of information and interpretation of drawings and manuals regarding the plant
- Composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
- Reactions taking place, conditions and effects of changes (to include chemical and physical properties)
- The effects of changes of ambient conditions on plant operation
- Hydrocarbon hydrate formation – prevention – dispersion
- Effects of Emergency Shut Down control systems
- Effects of Fire and Gas control system
- Effects of loss of any utility and its reinstatement

**Element PT2.2.1 Operate Process Systems**

**Performance Statements**

In achieving this unit you must have:

1. achieved required process system specification through appropriate work methods/techniques
2. ensured steady state conditions by appropriate process systems throughput
3. accurately identified process system faults and taken appropriate action
4. accurately identified critical situations and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

**Knowledge and Understanding**

You must know and understand:

1. how to identify and deal with critical situations (to include process deviations, extreme weather conditions, spillages, uncontrolled emissions)
2. how to deal with process system throughput (to include increase/decrease throughput, specified sequence, recommended rate)
3. how to identify process system faults (to include lack of services and supply, variances in services, mechanical and electrical breakdown, process and utility setting deviations)
4. limits of own responsibility
5. the actions appropriate to critical situations (to include quick shutdown, return process with safe parameters, operate standby equipment)
6. the nature of information required (e.g. oral, written, equipment status, process status, handover reports)
Element PT2.2.2    Monitor Process Systems

Performance Statements

In achieving this unit you must have:

1. effectively maintained the process system in the required steady state
2. accurately identified and rectified faults and problems
3. correctly taken samples and carried out relevant tests and comparative testing
4. promptly reported deviations outwith your responsibility
5. ensured that information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated **Safe Systems of Work**

Knowledge and Understanding

You must know and understand:

1. what steady state conditions are and how they are achieved
2. limits of own responsibility
3. types and causes of deviations and the relevant actions (to include report, record, adjust) to take when they occur
4. how to deal with oral and written information
5. how to perform leak testing and sampling and how to interpret results
Unit PT2.3: Prepare and Shut Down Process Systems

This unit is about preparing for and carrying out the shutdown of process systems.

PT2.3.1 Prepare for Process System Shutdown

PT2.3.2 Shut Down the Process System

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Plant layout and its connection with other systems
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Sources of information and interpretation of drawings and manuals regarding the plant
- Effects of Emergency Shutdown control systems
- Effects of Fire and Gas control system
Element PT2.3.1 Prepare For Process System Shutdown

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instructions
2. accurately determined shutdown time and made appropriate preparations for shutdown
3. effectively briefed relevant personnel on shutdown procedures
4. accurately identified real and potential hazards and protected against them
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret (oral and written) shutdown instructions
2. how to access and interpret operational instructions (to include sequence of shutdown, recommended rate of shutdown)
3. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)

Element PT2.3.2 Shut Down the Process System

Performance Statements

In achieving this unit you must have:

1. accurately input and set shutdown settings, process variables and services
2. safely shut down the process system
3. effectively protected against shutdown hazards
4. effectively monitored shutdown and corrected faults and problems as appropriate
5. isolated plant and utilities from operating sources
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to input and set shutdown settings, process variables and services
2. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)
3. how to isolate plant and utilities from operating sources
Unit PT2.4: Isolate and De-isolate Process Plant and Equipment

This unit is about preparing the plant and equipment for isolation and reinstatement.

PT2.4.1 Prepare Plant and Equipment for Maintenance

PT2.4.2 Isolate Plant and Equipment

PT2.4.3 De-isolate Plant and Equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to access and interpret (oral and written) shutdown instructions
- How to access and interpret operational instructions (to include sequence of shutdown, recommended rate of shutdown)
- The real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)
Element PT2.4.1  Prepare Plant and Equipment for Maintenance

Performance Statements

In achieving this unit you must have:

1. effectively obtained instructions and organised work correctly
2. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
3. relevant personnel are briefed and work allocated to optimise effectiveness of preparation
4. correctly prepared plant and equipment
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret instructions (to include process system specification, production schedule, covering different plant and equipment)
2. how to deal with oral and written information (e.g. include work activity briefing provided to others, clarification of operational instructions, work activity recording)
3. the factors impacting upon optimising performance (to include layout, tools and equipment required, purging medium required)
4. how to identify hazards (to include spillages, uncontrolled emissions, extreme weather conditions)
Element PT2.4.2 Isolate Plant and Equipment

Performance Statements

In achieving this unit you must have:

1. effectively monitored preparations and minimised risks to personnel, environment, process, plant and equipment
2. effectively tested for ingress of liquid and gas and confirmed safety of the plant and equipment
3. effectively monitored and maintained the status of the isolation
4. ensured that all information supplied and recorded is accurate, complete and legible
5. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to carry out the tests for ingress of liquid and gas
2. how to access and interpret operational instructions on safety, downtime, tools and equipment used
3. how to minimise risks through appropriate reporting, adjusting, recording
Element PT2.4.3  De-isolate Plant and Equipment

Performance Statements

In achieving this unit you must have:

1. effectively de-isolated plant and equipment
2. monitored de-isolation and minimised risks to personnel, environment, process, plant and equipment
3. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
4. effectively carried out leak detection tests and confirmed the plant and equipment safe to return to service
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the principles of de-isolation
2. the limits of your own responsibilities
3. how to access and interpret instructions (to include safety, downtime, integration of processes)
4. how to deal with oral and written information (to include reinstatement completion details, work activity details)
Unit PT3.1: Prepare and Start Up Integrated Process Systems

This unit is about preparing and starting up integrated process systems for operation.

PT3.1.1 Prepare to Carry Out a Production Process

PT3.1.2 Start Up Integrated Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
Element PT3.1.1 Prepare to Carry Out a Production Process

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instruction
2. effectively organised work of self and others where appropriate
3. effectively briefed relevant personnel
4. accurately identified difficulties with relevant parts of the Safe Systems of Work system and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. work area hazards (to include spillages, uncontrolled emissions, H₂S and other toxic substances, extreme weather conditions)
2. plant layout and its connection with other systems
3. how to access and interpret drawings and manuals regarding the plant
4. the effects of changes in ambient conditions on plant operation
5. who to deal with (to include co-workers, supervisors, managers, workers of other disciplines)
6. how to work with and within the Safe Systems of Work system
Element PT3.1.2  Start Up Integrated Process Systems

Performance Statements

In achieving this unit you must have:

1. correctly prepared plant and utilities
2. effectively started up the process system
3. accurately identified faults and taken appropriate action
4. integrated the plant and utilities and facilitated optimum processing
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the limits of your own responsibilities
2. how to identify faults (to include damage, wear, malfunction, process deviations, service defects)
3. the appropriate action to take on identification of faults in the plant and utilities
4. how to achieve optimum processing
Unit PT3.2: Operate and Monitor Integrated Process Systems

This unit is about operating and monitoring integrated process systems.

PT3.2.1 Operate Integrated Process Systems

PT3.2.2 Monitor Integrated Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Normal plant conditions and the tolerances within which they operate
- Sources of information and interpretation of drawings and manuals regarding the plant
- Composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
- Reactions taking place, conditions and effects of changes (to include chemical and physical properties)
- The effects of changes of ambient conditions on plant operation
• Hydrocarbon hydrate formation – prevention – dispersion
• Effects of Emergency Shut Down control systems
• Effects of Fire and Gas control system
• Effects of loss of any utility and its reinstatement

Element PT3.2.1 Operate Integrated Process Systems

Performance Statements

In achieving this unit you must have:

1. achieved required process system specification through appropriate work methods/techniques
2. ensured steady state conditions by appropriate process systems throughput
3. accurately identified process system faults and taken appropriate action
4. accurately identified critical situations and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to identify and deal with critical situations (to include process deviations, extreme weather conditions, spillages, uncontrolled emissions)
2. how to deal with process system throughput (to include increase/decrease throughput, specified sequence, recommended rate)
3. how to identify process system faults (to include lack of services and supply, variances in services, mechanical and electrical breakdown, process and utility setting deviations)
4. limits of own responsibility
5. the actions appropriate to critical situations (to include quick shutdown, return process with safe parameters, operate standby equipment)
6. the nature of information required (e.g. oral, written, equipment status, process status, handover reports)
Element PT3.2.2  Monitor Integrated Process Systems

Performance Statements

In achieving this unit you must have:

1. effectively maintained the process system in the required steady state
2. accurately identified and rectified faults and problems
3. correctly taken samples and carried out relevant tests and comparative testing
4. promptly reported deviations outwith your responsibility
5. ensured that information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. what steady state conditions are and how they are achieved
2. limits of own responsibility
3. types and causes of deviations and the relevant actions (to include report, record, adjust) to take when they occur
4. how to deal with oral and written information
5. how to perform leak testing and sampling and how to interpret results
Unit PT3.3: Prepare and Shut Down Integrated Process Systems

This unit is about preparing for and carrying out the shutdown of integrated process systems.

PT3.3.1 Prepare for Integrated Process System Shutdown

PT3.3.2 Shut Down the Integrated Process System

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Plant layout and its connection with other systems
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Sources of information and interpretation of drawings and manuals regarding the plant
- Effects of Emergency Shutdown control systems
- Effects of Fire and Gas control system
Element PT3.3.1  Prepare for Integrated Process System Shutdown

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instructions
2. accurately determined shutdown time and made appropriate preparations for shutdown
3. effectively briefed relevant personnel on shutdown procedures
4. accurately identified real and potential hazards and protected against them
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret (oral and written) shutdown instructions
2. how to access and interpret operational instructions (to include sequence of shutdown, recommended rate of shutdown)
3. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)

Element PT3.3.2  Shut Down the Integrated Process System

Performance Statements

In achieving this unit you must have:

1. accurately input and set shutdown settings, process variables and services
2. safely shut down the process system
3. effectively protected against shutdown hazards
4. effectively monitored shutdown and corrected faults and problems as appropriate
5. isolated plant and utilities from operating sources
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to input and set shutdown settings, process variables and services
2. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)
3. how to isolate plant and utilities from operating sources
Unit PT3.4: Isolate and Reinstall Process Plant and Equipment

This unit is about preparing the plant and equipment for isolation and reinstatement.

PT3.4.1 Prepare Plant and Equipment for Maintenance
PT3.4.2 Isolate Plant and Equipment
PT3.4.3 De-isolate Plant and Equipment

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Methods and limitations of depressurisation/pressurisation, blowdown, temperature, relief systems, drains, flares, vents
- Sources of information and interpretation of drawings and manuals regarding the plant
- How to work with and within the relevant parts of the Safe Systems of Work system
- All relevant sources of energy to prime movers
• Properties of purging media
• Composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
• Effects of Emergency Shut Down control systems
• Effects of Fire and Gas control systems
• Isolation devices and methods of installation

Element PT3.4.1 Prepare Plant and Equipment for Maintenance

Performance Statements

In achieving this unit you must have:

1. effectively obtained instructions and organised work correctly
2. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
3. relevant personnel are briefed and work allocated to optimise effectiveness of preparation
4. correctly prepared plant and equipment
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret instructions (to include process system specification, production schedule, covering different plant and equipment)
2. how to deal with oral and written information (e.g. include work activity briefing provided to others, clarification of operational instructions, work activity recording)
3. the factors impacting upon optimising performance (to include layout, tools and equipment required, purging medium required)
4. how to identify hazards (to include spillages, uncontrolled emissions, extreme weather conditions)
Element PT3.4.2  Isolate Plant and Equipment

Performance Statements

In achieving this unit you must have:

1. effectively monitored preparations and minimised risks to personnel, environment, process, plant and equipment
2. effectively tested for ingress of liquid and gas and confirmed safety of the plant and equipment
3. effectively monitored and maintained the status of the isolation
4. ensured that all information supplied and recorded is accurate, complete and legible
5. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to carry out the tests for ingress of liquid and gas
2. how to access and interpret operational instructions on safety, downtime, tools and equipment used
3. how to minimise risks through appropriate reporting, adjusting, recording
Element PT3.4.3  De-isolate Plant and Equipment

Performance Statements

In achieving this unit you must have:

1. effectively de-isolated plant and equipment
2. monitored de-isolation and minimised risks to personnel, environment, process, plant and equipment
3. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
4. effectively carried out leak detection tests and confirmed the plant and equipment safe to return to service
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the principles of de-isolation
2. the limits of your own responsibilities
3. how to access and interpret instructions (to include safety, downtime, integration of processes)
4. how to deal with oral and written information (to include reinstatement completion details, work activity details)
Unit PTC3.1: Prepare Integrated Process Systems for Remote Control Operation

This unit is about preparing integrated process systems for remote control operation.

PTC3.1.1 Prepare to Carry Out a Production Process

PTC3.1.2 Prepare Equipment for the Production Process

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- Safe Systems of Work must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Work area hazards (to include spillages, uncontrolled emissions, H2S and other toxic substances, extreme weather conditions)
- The appropriate actions to take in the event of a work area hazard
- Plant layout and its connection with other systems
- How to access and interpret drawings and manuals regarding the plant
- The effects of changes in ambient conditions on plant operation
• Who to deal with (to include co-workers, supervisors, managers, workers of other disciplines)

**Element PTC3.1.1 Prepare to Carry Out a Production Process**

**Performance Statements**

In achieving this unit you must have:

1. effectively obtained operational instruction
2. effectively organised work of self and others where appropriate
3. effectively briefed relevant personnel
4. accurately identified difficulties with relevant parts of the Safe Systems of Work system and taken appropriate action
5. ensured that all information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

**Knowledge and Understanding**

You must know and understand:

1. work area hazards (to include spillages, uncontrolled emissions, H₂S and other toxic substances, extreme weather conditions)
2. plant layout and its connection with other systems
3. how to access and interpret drawings and manuals regarding the plant
4. the effects of changes in ambient conditions on plant operation
5. who to deal with (to include co-workers, supervisors, managers, workers of other disciplines)
Element PTC3.1.2 Prepare Equipment for the Production Process

Performance Statements

In achieving this unit you must have:

1. correctly prepared plant and utilities
2. accurately identified faults and taken appropriate action
3. integrated the plant and utilities and facilitated optimum processing
4. ensured that all information supplied and recorded is accurate, complete and legible
5. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the effect of equipment internals upon the integrated process system
2. the functions of remote process control including instrumentation and logic
3. the normal operating parameters and associated tolerances
4. the composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
5. the reactions taking place, conditions and effects of changes (to include chemical and physical properties)
6. the principles of hydrocarbon hydrate formation – prevention – dispersion
7. the effects of loss of any system upon the integrated process system and its reinstatement
Unit PTC3.2: Remotely Control Integrated Process Systems

This unit is about controlling the operation of integrated process systems to within the required operational parameters.

PTC3.2.1 Control Integrated Process Systems

PTC3.2.2 Monitor Integrated Process Systems

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in **bold** in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Normal plant conditions and the tolerances within which they operate
- Sources of information and interpretation of drawings and manuals regarding the plant
- Composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
- Reactions taking place, conditions and effects of changes (to include chemical and physical properties)
- The effects of changes of ambient conditions on plant operation
- Effects of loss of any utility and its reinstatement

**Element PTC3.2.1 Control Integrated Process Systems**

**Performance Statements**

In achieving this unit you must have:

1. effectively maintained the process system in the required steady state
2. achieved required process system specification through appropriate work methods/techniques
3. ensured steady state conditions by appropriate process systems throughput
4. accurately identified process system faults and taken appropriate action
5. accurately identified critical situations and taken appropriate action
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational instructions and associated **Safe Systems of Work**

**Knowledge and Understanding**

You must know and understand:

1. how to identify and deal with critical situations (to include process deviations, extreme weather conditions, spillages, uncontrolled emissions)
2. how to deal with process system throughput (to include increase/decrease throughput, specified sequence, recommended rate)
3. how to identify process system faults (to include lack of services and supply, variances in services, mechanical and electrical breakdown, process and utility setting deviations)
4. limits of own responsibility
5. the principles and effect of hydrocarbon hydrate formation – prevention – dispersion
6. the actions appropriate to critical situations (to include quick shutdown, return
7. process with safe parameters, operate standby equipment)
8. the nature of information required (to include oral, written, equipment status, process status, handover reports)
Element PTC3.2.2 Monitor Integrated Process Systems

Performance Statements

In achieving this unit you must have:

1. accurately identified and rectified faults and problems
2. correctly taken samples and carried out relevant tests and comparative testing
3. taken appropriate action to maintain process parameters
4. promptly reported deviations outwith your responsibility
5. ensured that information supplied and recorded is accurate, complete and legible
6. effectively maintained your work area to be clean and hazard free
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. what steady state conditions are and how they are achieved
2. how to identify and rectify faults
3. limits of own responsibility
4. types and causes of deviations and the relevant actions (to include report, record, adjust) to take when they occur
5. how to deal with oral and written information
6. how to perform leak testing and sampling and how to interpret results
7. how to monitor systems (to include flare and vent, emergency shutdown, fire and gas)
Unit PTC3.3: Prepare and Shut Down Remote Integrated Process Systems

This unit is about preparing for and carrying out the shutdown of remote integrated process systems.

PTC3.3.1 Prepare for Integrated Process System Shutdown

PTC3.3.2 Shut Down the Integrated Process System

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Equipment internals and their function
- Functioning of process control including instrumentation and logic
- Methods and limitations of depressurisation/pressurisation, blowdown, temperature, relief systems, drains, flares, vents
- Sources of information and interpretation of drawings and manuals regarding the plant
- All relevant sources of energy to prime movers
- Properties of purging media and its effect on systems

Page 69 of 74
• Composition and properties of feedstock (to include toxicity, flammability, S G and temperature)
• Effects of Emergency Shut Down control systems
• Effects of Fire and Gas control systems
• Isolation devices and methods of installation

Element PTC3.3.1 Prepare for Integrated Process System Shutdown

Performance Statements

In achieving this unit you must have:

1. effectively obtained operational instructions
2. accurately determined shutdown time and made appropriate preparations for shutdown
3. effectively briefed relevant personnel on shutdown procedures
4. accurately identified real and potential hazards and protected against them
5. ensured that all information supplied and recorded is accurate, complete and legible
6. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to access and interpret (oral and written) shutdown instructions
2. how to access and interpret operational instructions (to include sequence of shutdown, recommended rate of shutdown)
3. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)
Element PTC3.3.2  Shut Down the Integrated Process System

Performance Statements

In achieving this unit you must have:

1. accurately input and set shutdown settings, process variables and services
2. safely shut down the process system
3. effectively protected against shutdown hazards
4. effectively monitored shutdown and corrected faults and problems as appropriate
5. isolated plant and utilities from operating sources
6. worked safely in accordance with operational requirements and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. how to input and set shutdown settings, process variables and services
2. the real and potential shutdown hazards (to include standby equipment operational, vents, noise, heat)
3. how to isolate plant and utilities from operating sources
Unit PTC3.4: Facilitate the Maintenance of Process Plant and Equipment

This unit is about facilitating the maintenance of plant and equipment.

PTC3.4.1 Coordinate the Isolation of Plant and Equipment for Maintenance

PTC3.4.2 Coordinate the De-isolation of Plant and Equipment for Maintenance

During this work you must take account of the relevant worksite operational requirements, procedures and safe working practices AS THEY APPLY TO YOU.

Unit Scope

Candidates must prove competence across the following items (or ‘systems’) as appropriate to the workplace and Evidence Specification:

- Wells
- Oil Storage/Discharge Process
- Gas Process
- Oil/Gas Process and Export
- Water Injection
- Metering
- Utilities

In addition, the following terms in bold relate directly to those shown in bold in the Performance Statements.

- **Safe Systems of Work** must include processes or systems that incorporate Hazard Identification, Risk Assessment, Permit to Work and any other associated systems.

Unit-wide Knowledge

- How to use ‘Safe Systems of Work’ processes to identify hazards and mitigate or reduce risks to as low as reasonably practicable (ALARP)
- How to select, use and care for PPE (to include sight/hearing protection, coveralls, coveralls, gloves, footwear, hard hats, respirators)
- The implications of statutory (e.g. HASAWA and COSHH) and organisational requirements
- How to interpret operational requirements (e.g. Policies, procedures, instructions, codes of practice, standards, schedules)
- Limits of your own responsibilities
- Safe working practices appropriate to the location
- Plant layout and its integration with other processes and systems
- The effect of equipment internals upon integrated process system operation
- Functioning of remote process control including instrumentation and logic
- Normal operating parameters and their tolerances
- Sources of information and interpretation of drawings and manuals regarding the integrated process systems
• All relevant sources of energy to prime movers
• Properties of purging media and its effects upon integrated process systems
• Composition and properties of feedstock (to include toxicity, flammability, S.G. and temperature)
• Procedures for entry into confined spaces
• Reactions taking place, conditions and effects of changes (to include chemical and physical properties)
• Effects and operation of Emergency Shutdown control system
• Effects and operation of Fire and Gas control system
• Isolation devices and methods of installation

**Element PTC3.4.1 Coordinate the Isolation of Plant and Equipment for Maintenance**

**Performance Statements**

In achieving this unit you must have:

1. effectively obtained instructions and planned and organised work of self and others correctly
2. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
3. effectively coordinated plans and preparations
4. relevant personnel are briefed and work allocated to optimise effectiveness of preparation
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

**Knowledge and Understanding**

You must know and understand:

1. how to access and interpret instructions (to include process system specification, production schedule, covering different plant and equipment)
2. how to access, interpret and communicate operational requirements (to include processes, arrangement of work area, downtime, maintenance rota)
3. how to deal with oral and written information (e.g. work activity briefing provided to others, clarification of operational instructions, work activity recording)
4. the factors impacting upon optimising performance (to include layout, tools and equipment required, purging medium required)
5. how to identify hazards (to include spillages, uncontrolled emissions, extreme weather conditions)
Element PTC3.4.2 Coordinate the De-isolation of Plant and Equipment for Maintenance

Performance Statements

In achieving this unit you must have:

1. effectively de-isolated plant and equipment
2. monitored de-isolation and minimised risks to personnel, environment, process, plant and equipment
3. ensured that the relevant parts of the Safe Systems of Work system are operated effectively
4. effectively carried out leak detection tests and confirmed the plant and equipment safe to return to service
5. effectively maintained your work area to be clean and hazard free
6. ensured that all information supplied and recorded is accurate, complete and legible
7. worked safely in accordance with operational instructions and associated Safe Systems of Work

Knowledge and Understanding

You must know and understand:

1. the principles of de-isolation
2. the limits of your own responsibilities
3. how to access and interpret instructions (to include safety, downtime, integration of processes)
4. how to deal with oral and written information (to include reinstatement completion details, work activity details)