Assessor's Guidelines for the SVQ in Processing Operations: Hydrocarbons at level 1, level 2 and level 3 and Processing Operations: Hydrocarbons (Control Room) at level 3

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About this guide

This guide provides some practical examples of how to assess your candidates for the **SVQs in Processing Operations: Hydrocarbons at levels 1, 2 and 3, and Processing Operations: Hydrocarbons (Control Room) at level 3**. You may be able to think of other ways of assessing your candidates and recording your decisions about their competence.

Although these guidelines cover the three levels for Processing Operations Hydrocarbons SVQs and the standards differ for each level of the award, the principles of assessment and methods utilised should be similar.

Using assessments based on these examples does not guarantee successful verification — it is still your responsibility to ensure that internal quality assurance procedures are followed.

Introduction

This introduction provides a brief overview of SVQs and how they are assessed in the workplace. If you are already familiar with the concept of SVQs, you may wish to go straight to the next section.

About SVQs

Scottish Vocational Qualifications (SVQs) are work-based qualifications which set the level of occupational competence for each sector of the economy. The qualifications have been designed by standards-setting bodies made up of experienced practitioners from employers, professional bodies, trade unions, education and the voluntary organisations.

Each standards-setting body is responsible for developing national standards which define what employees, or potential employees, must be able to do, how well, and in what circumstances to show that they are competent in their work.

Each SVQ which a standards-setting body develops must fit into a broad framework which allows for comparison of qualifications in the UK and throughout Europe. SVQs are specified at five levels which reflect the various technical and supervisory skills, knowledge and experience which employees should have as they progress in their industry.

Explanation of levels

Level 1 Defines competent performance in a range of activities which are largely routine and predictable.

Level 2 Specifies that competent performance must be shown in a broader range of work activities which are less routine and predictable. The employee will have more autonomy and responsibility and may have to work as part of a team.

Level 3 Specifies that competence must involve the employee in carrying out a broad range of varied work activities most of which are complex and non-routine. There is considerable autonomy and responsibility, including the possibility of controlling or guiding others.

Level 4 Specifies competence as complex technical or professional work activities which require a substantial degree of personal autonomy or responsibility. Managing staff and other resources is often present.

Level 5 Specifies competent performance as involving the employee in carrying out a significant range of activities in a wide variety of situations which are often unpredictable. Substantial responsibility and autonomy is involved in the work which requires decision-making in the allocation of resources and the work of others. This will require complex skills such as analysis, design and evaluation.

How are standards defined in SVQs?

Each SVQ can be broken down into the various parts — Units, elements, standards of performance, Evidence Requirements, knowledge and understanding and assessment guidance.

Units define the broad functions carried out in the sector and are made up of a number of **Elements**. These Elements describe the activities which employees have to perform and may relate to skills or to the demonstration of knowledge and understanding.

The level of quality of performance in these activities is specified by a number of statements called **Standards of Performance** (in other SVQs they can be called **Performance Criteria**).

The **Evidence Requirements** specify the amount and type of evidence required and the circumstances in which candidates need to show that they have met the standard specified in the standards of performance.

The section on **knowledge and understanding** states what candidates must know and understand, and how this knowledge applies to their jobs.

Assessment guidance provides some examples of where to find the evidence, and may offer some advice on how to interpret the standards. This section is for guidance only and should not be treated as mandatory.

Who is involved in SVQs?

There are several roles:

- **the candidate:** the person who wants to achieve the SVQ (eg an employee)
- **the assessor*:** the person who assess the candidates and decides if they are competent (eg supervisor)
- **the internal verifier*:** an individual nominated by the centre (eg a company) who ensure that assessors apply the standards uniformly and consistently (eg supervisor's line manager)
- **the external verifier*:** an individual appointed by SQA who ensures that standards are being applied uniformly and consistently across all centres offering the SVQ

*Assessors and verifiers of SVQs will be asked by SQA's external verifiers to prove they have the appropriate occupational competence defined by the standards-setting body. Occupational competence is defined in the standards-setting body's assessment strategy (see SQA's website: **www.sqa.org.uk**).

How do you assess a candidate for an SVQ?

In deciding whether a candidate should get an SVQ, you will go through these stages:

- planning for assessment
- generating and collecting evidence of the candidate's competence in the Units
- judging the evidence of the candidate's ability and making an assessment decision based on the evidence
- recording the assessment decision and the candidate's achievement

1 The SVQs in Processing Operations: Hydrocarbons

The SVQs in Processing Operations: Hydrocarbons are qualifications which describe the Standards of Performance and the knowledge and understanding required for personnel working as Production Operators in the oil and gas extraction industry.

The SVQs have been developed through OPITO, the oil and gas extraction industry standards-setting body. It is designed to be assessed in the workplace, or in the conditions of the workplace. Level 2 and level 3 candidates must be assessed in their normal work environment, which in this case would be the production systems within an oil and gas extraction facility. Level 1 candidates may be assessed in an appropriately equipped training environment which replicates production systems found in an oil and gas extraction facility.

Reference should be made to the Assessment Strategy (on SQA's website: **www.sqa.org.uk**) for further guidance on facilities used for assessment.

The majority of evidence of competence should be drawn from a candidate's normal work activities, and not from artificially-contrived situations created solely for assessment. Procedures and standards used should be those which are nationally or internationally recognised, or devised by companies as standard operating procedures.

Simulation of specifically hazardous operations may be appropriate (eg *Control Emergencies and Critical Situations*). Where simulation facilities are used, equipment being operated must be similar to that currently used in the industry. Facilities that are clearly outdated and no longer operationally appropriate should not be used.

What SVQs are available for the industry and who are they for?

There are three levels of SVQ available to production operations personnel in the oil and gas extraction industry.

The level 1 SVQ in Processing Operations: Hydrocarbons is specifically intended for trainee process operators. Competence assessments would normally be conducted in the workplace or at an appropriately equipped training centre.

The level 2 SVQ in Procession Operations: Hydrocarbons is intended for process operators who are involved in carrying out routine operational tasks within a production team.

The level 3 SVQ in Processing Operations: Hydrocarbons has been produced in two formats to meet the needs of the industry:

- Level 3 SVQ in Processing Operations: Hydrocarbons is designed for experienced process operators/technicians who predominantly work as 'outside operators'. This SVQ reflects the experience and competence required by candidates working in a multi-tasking team environment for instance.
- Level 3 SVQ in Processing Operations (Control Room): Hydrocarbons is designed for experienced process operators who predominantly work in a Control Room.

The level 1 award has five Units, which will provide evidence of candidates' ability to carry out operational activities within their normal work location or an appropriately equipped training centre in a safe manner, whilst maintaining effective working relationships with others.

The level 2 award has seven Units, which will provide evidence of candidates' ability to carry out operational activities within their normal work location in a safe manner, whilst maintaining effective working relationships with others.

Both level 3 awards have seven Units, which will provide evidence of candidates' ability to carry out integrated operational activities within their normal work location in a safe manner, whilst maintaining effective working relationships with others.

Structure of the SVQ[1]

To achieve the SVQ in Processing Operations: Hydrocarbons at level 1 candidates must complete all five Units.

SQA Ref	NTO Ref	
AY19 04	PT1.1	**Start Up and Shutdown a Process System** ♦ Prepare and start up a process system ♦ Prepare and shut down a process system
AY1A 04	PT1.2	**Monitor a Process System** ♦ Prepare to monitor a process system ♦ Carry out process system monitoring
B5K9 04	C1	**Contribute to the Health and Safety of the Working Environment** ♦ Conform to all relevant requirements ♦ Monitor and maintain the health and safety of self and others ♦ Monitor and maintain pollution control measures
B1FK 04	C3	**Assist with the Control of Emergencies and Critical Situations** ♦ Assist with the control of critical situations ♦ React to emergencies in other areas
F22A 04	C6	**Establish and Maintain Effective Relationships with Others** ♦ Establish and maintain effective working relationships with others ♦ Establish and maintain effective communication with others

To achieve the SVQ in Processing Operations: Hydrocarbons at level 2 candidates must complete all seven Units.

SQA Ref	NTO Ref	
F22L 04	PT2.1	**Prepare and Start up Process Systems** ♦ Prepare to carry out a production process ♦ Start up process systems
D9P2 04	PT2.2	**Operate and Monitor Process Systems** ♦ Operate process systems ♦ Monitor process systems
F22H 04	PT2.3	**Prepare and Shut Down Process Systems** ♦ Prepare for process system shutdown ♦ Shut down the process system
F22B 04	PT2.4	**Isolate and De-isolate Process Plant and Equipment** ♦ Prepare plant and equipment for maintenance ♦ Isolate plant and equipment ♦ De-isolate plant and equipment
B5K9 04	C1	**Contribute to the Health and Safety of the Working Environment** ♦ Conform to all Relevant Requirements ♦ Monitor and Maintain the Health and Safety of Self and Others ♦ Monitor and Maintain Pollution Control Measures
AT0W 04	C4	**Contribute to the Control of Emergencies and Critical Situations** ♦ Contribute to the control of critical situations ♦ Respond to emergencies in other areas
F22A 04	C6	**Establish and Maintain Effective Relationships with Others** ♦ Establish and maintain effective working relationships with others ♦ Establish and maintain effective communication with others

[1] (To be read in conjunction with Appendix 2)

To achieve the SVQ in Processing Operations: Hydrocarbons at level 3 candidates must complete all seven Units.

SQA Ref	NTO Ref	
F22K 04	PT3.1	**Prepare and Start Up Integrated Process Systems** ♦ Prepare to carry out a production process ♦ Start up integrated process systems
AY1G 04	PT3.2	**Operate and Monitor Integrated Process Systems** ♦ Operate integrated process systems ♦ Monitor integrated process systems
F22G 04	PT3.3	**Prepare and Shut Down Integrated Process Systems** ♦ Prepare for integrated process system shutdown ♦ Shut down the integrated process system
D7SB 04	PT3.4	**Isolate and Reinstate Process Plant and Equipment** ♦ Prepare plant and equipment for maintenance ♦ Isolate plant and equipment ♦ De-isolate plant and equipment
F22D 04	C2	**Monitor and Maintain Health, Environment and Safety Systems** ♦ Administer the safe systems of work process ♦ Maintain the necessary conditions for an effective and safe working environment
B1AV 04	C5	**Control Emergencies and Critical Situations** ♦ Maintain a state of readiness ♦ Control critical situations ♦ Co-ordinate the response to emergencies
F228 04	C7	**Create, Maintain and Enhance Productive Working Relationships** ♦ Create and enhance productive working relationships ♦ Enhance productive working relationships with one's immediate manager ♦ Carry out work handovers

To achieve the SVQ in Processing Operations: Hydrocarbons (Control Room) at level 3 candidates must complete all seven Units.

SQA Ref	NTO Ref	
AY1C 04	PTC3.1	**Prepare Integrated Process Systems for Remote Control Operation** ♦ Prepare to carry out a production process ♦ Prepare equipment for the production process
AY1D 04	PTC3.2	**Remotely Control Integrated Process Systems** ♦ Control integrated process systems ♦ Monitor integrated process systems
F22J 04	PTC3.3	**Prepare and Shut Down Remote Integrated Process Systems** ♦ Prepare for integrated process system shutdown ♦ Shut down the integrated process system
D7SA 04	PTC3.4	**Facilitate the Maintenance of Process Plant and Equipment** ♦ Coordinate the isolation of plant and equipment for maintenance ♦ Coordinate the de-isolation of plant and equipment for maintenance

SQA Ref	NTO Ref	
F22D 04	C2	**Monitor and Maintain Health, Environment and Safety Systems** ♦ Administer the safe systems of work process ♦ Maintain the necessary conditions for an effective and safe working environment
B1AV 04	C5	**Control Emergencies and Critical Situations** ♦ Maintain a state of readiness ♦ Control critical situations ♦ Co-ordinate the response to emergencies
F228 04	C7	**Create, Maintain and Enhance Productive Working Relationships** ♦ Create and enhance productive working relationships ♦ Enhance productive working relationships with one's immediate manager ♦ Carry out work handovers

Who is the SVQ for?

The SVQs in Processing Operations: Hydrocarbons are designed for people working, or intending to work, in a number of areas in the oil and gas extraction industry. These areas include production operations, and multi-tasking operations.

Why would people be interested in the SVQ?

People will take SVQs for a variety of reasons — for promotion purposes, or for personal development. There will be other reasons, and one of your first responsibilities as an assessor is to find out why your candidates want to do the SVQ, and to advise them on its appropriateness.

Example 1

Level 1 candidates may be trainee technicians doing a college-based course as part of the modern apprenticeship scheme and therefore be required to do the level 1 Processing Operations: Hydrocarbons SVQ prior to commencing the work placement part of the scheme. They may have a reasonable theoretical knowledge of processing operations, but need to demonstrate some practical application of this knowledge as part of their workplace induction programme.

Example 2

Candidates may be required to use the SVQ as a tool to demonstrate their competence as part of an organisation's competence assurance scheme. They may already have significant skills and experience, and simply need to have these formally demonstrated and recorded. Depending on their experience and job role the assessor would need to determine which level is the most appropriate award.

Example 3

Candidates who have worked in the industry for a number of years and already have appropriate skills, knowledge and experience may want to use the SVQ to gain recognition for these skills, eg an experienced production operator who has transferred from another discipline and wishes to gain a recognised qualification. The assessor would need to determine which level is the most appropriate award.

How do candidates begin?

Choosing the SVQ

You should make sure that candidates get guidance before starting out on an SVQ. They need advice to ensure that their existing job remit, skills, experience, and their plans for progression, are matched to the SVQ selected. It does not have to be you, as the assessor, who carries out the matching process, but whoever has responsibility for this should ensure that the assessment opportunities available to the candidate are also considered.

An example

Phil had worked as a production operator for a number of years but did not possess any formal qualifications. He had completed the company 'in-house' competence assurance scheme which required him to complete an 'On Job Training' (OJT) programme covering all the platform-specific systems and equipment.

Phil wanted a qualification which would formally recognise the skills he already had and offer international recognition. Because of his experience in all areas of process operations, and the fact that he had successfully completed the OJT programme, the Training and Competence Officer in his company advised him to consider an SVQ in Processing Operations: Hydrocarbons at level 3.

The assessor suggested that they should consider using the OJT programme as Accreditation of Prior Learning to help Phil achieve some of the Units. After matching the OJT work Phil had done, to the level 3 SVQ, it was apparent that Phil had already generated a lot of evidence towards achieving the first four Units:

- Prepare and Start Up Integrated Process Systems
- Operate and Monitor Integrated Process Systems
- Prepare and Shut Down Integrated Process Systems
- Isolate and Reinstate Process Plant and Equipment

Fortunately, Phil had completed all his OJT modules within the past two years, therefore this evidence would be considered current as well as valid. Arrangements were made by the assessor to observe Phil carrying out the various tasks that would be necessary to complete the Evidence Requirements for the first four Units.

Phil also had a lot of experience in relation to the other three Units, though some planning would be required to provide him with the opportunity to generate evidence. Simulated emergency and critical situations were set up at on off-site training centre, where Phil, along with some of his colleagues, was to be assessed for the Unit, *Control Emergencies and Critical Situations*. Plans were made to assess the remaining two Units through a combination of observation, witness testimonies and questioning.

- Monitor and Maintain Health, Environment and Safety Systems
- Create, Maintain and Enhance Productive Working Relationships

The assessor worked with Phil to produce assessment plans for each of the Units and to provide Phil with guidance on how to collect evidence and construct a portfolio.

2 Assessing the SVQ

Note: Where OPITO Units and qualifications are being used, assessors should also refer to the OPITO document entitled '*Assessment Strategy for the Offshore Oil and Gas Sector'*. (See SQA's website: **www.sqa.org.uk**.)

Planning

This section offers practical advice on how to go about assessing your candidates for all SVQs in Processing Operations: Hydrocarbons. This advice is offered as examples of good practice — you may develop your own approaches to assessing your candidates which also work well.

Your role and your candidate's role

Assessing the SVQ will involve several stages. Both you and the candidate should be clear on your roles in the assessment process before you begin.

Your role

- ensure candidates understand what is to be assessed and how it is to be assessed
- ensure the conditions and materials required for assessment are available
- observe and record candidates carrying out the activities described in the standards — records should say what has been observed, how it was carried out and what it demonstrates
- question candidates and record results
- authenticate the evidence candidates provide
- help candidates to gather and present evidence
- judge evidence
- record achievement
- identify gaps or shortfalls in candidates' competence
- provide feedback to candidates

Candidates' role

- prepare for assessment — familiarise themselves with the standards, what is to be assessed and how it is to be assessed
- carry out activities, and/or answer questions, and/or gather and present evidence for assessment
- receive feedback from the assessor

Working with the standards

As an assessor it is your responsibility to familiarise yourself with the standards that make up the Processing Operations: Hydrocarbons SVQs. In doing so you

will be able to identify the skills that will need to be demonstrated, and the types of evidence that a candidate will need to generate. You must ensure that the candidate has access to the necessary evidence — much of the documentation generated in the Oil and Gas Extraction Industry is retained in secure archives which candidates can easily access for information.

There are many tools that you can develop to help with planning assessment and recording the candidate's achievements. These will be better identified once you are familiar with the Standards of Performance and knowledge requirements for all the Units within the SVQ, but they include:

- assessment plans
- observation and questioning checklists
- matrices to link common job functions to the standards
- underpinning knowledge questionnaires with model answers
- checklists for assessing emergency and critical situations
- Workplace Assessor Manuals (WAMs) or Candidate Achievement Records (CARs) that are typically used to document and track progress

Planning for assessment

Assessment plans are an important tool and require particular attention to detail, due to the amount of evidence a candidate may need to gather over a period of time.

Developing a clear action plan with your candidate at the outset will save a lot of time in the long term by identifying:

- any potential resource concerns
- job activities that a candidate may perform that matches the standards, and can be assessed
- the need to recognise assessment opportunities when infrequent operations or tasks are carried out
- evidence that cannot be readily generated in the workplace, for which alternative arrangements have to be planned — eg the need to plan simulation of emergency and critical situations
- documentary evidence and witness testimony that may take time to gather

The assessment plan will make the assessment process clearer to both you and your candidate, as it will detail how each Unit/Element will be assessed. Assessment planning for the SVQ in Processing Operations: Hydrocarbons, particularly the level 2 and level 3 awards should take advantage of naturally-occurring assessment opportunities. It is most important that you and your candidate allocate sufficient time to plan the assessment, and that your candidate is given sufficient time to gather the documentary and supplementary evidence, such as witness testimonies etc.

You should ensure that your candidates understand the standards and the terminology, so that they can readily identify appropriate evidence and observation opportunities.

An example

This example of planning an assessment opportunity for Elements PT2.4.1 (level 2) and PT3.4.1 (level 3) 'Prepare plant and equipment for maintenance', illustrates how to take advantage of naturally-occurring work activities.

It is known that at some time during the current offshore trip an oil export pump has to be taken off-line and prepared for maintenance activities. The assessment plan should indicate that candidates will gather evidence of receiving written instructions for the job, as well as providing evidence that they have planned and organised the work correctly. (Performance Statement (1) 'effectively obtained instructions and organised the work correctly'.) The candidate should also gather evidence of risk assessments, isolation procedures, and other appropriate written instructions to be used. The plan should also indicate that you will take the opportunity to observe this process.

This example is also an opportunity for integrating assessment — your candidate will be able to produce evidence for at least another two Units. For Unit C2, *Monitor and Maintain Health, Environment and Safety Systems*, your candidate will be involved in preparing risk assessments and work permits and ensuring that an effective and safe working environment is maintained. There will also be obvious assessment and evidence-gathering opportunities for Unit C7, *Create, Maintain and Enhance Productive Working Relationships*.

It is unlikely that this one task will allow your candidate to generate sufficient evidence to fully complete these three Units, but good assessment planning and taking advantage of other similar naturally-occurring opportunities, will help reduce the assessment workload considerably.

Where naturally-occurring opportunities are being used, it is an important part of assessment planning to ensure that others involved in the task, and other contributors to the assessment process, are informed. They should then provide their signed agreement of co-operation on the assessment plan, as it may be that there will be some extra involvement from them that could have a slight impact on the duration of the task.

Example 1

You might agree with your candidate who has to demonstrate **operating or monitoring a process system**, that assessment will be by observation as and when the opportunity arises. If you are an assessor working alongside the candidate, you should be well placed to observe the candidate's performance by using a prepared 'observation checklist', and then question your candidate about the operation afterwards.

Example 2

A candidate who has to demonstrate their role in **assisting, contributing or controlling critical situations** and **responding to emergencies**, will (hopefully) not have the opportunity to do this in a real situation. You could therefore agree that the candidate could demonstrate these skills by simulation and questioning, in a role-playing exercise using appropriate scenarios. This could be carried out during an installation exercise, or at an off-site purpose-built facility.

There is an example of a completed assessment plan for a level 3 Unit on the next page. This plan would be used to cover an assessment of a candidate operating and monitoring a process such as oil and gas separation.

Assessment Plan

Unit title: Operate And Monitor Integrated Process Systems						**Unit No. PT3.2**
Element 1: 'Operate process systems'						
Element 2: 'Monitor process systems'						
Candidate's name	Phil Drummond	**Assessor's name**		Jack Weir		
Is the candidate experienced in collecting evidence? **Yes** ~~**No**~~	**Comment:** *Candidate has completed several SVQ Units*	**Does the candidate have special needs?** ~~**Yes**~~ **No**		**Comment:** *No special needs identified*		
Opportunities for collecting evidence	**Assessment methods**	**Performance Statements**	**Essential knowledge**	**Assessment date(s)/time**	**Review date/time**	**Feedback date/time**
Candidate conducting operating and monitoring routines for Oil & Gas Separation process.	Observation of candidate in the workplace	1.1, 2, 6 2.1, 2, 3, 5, 6	1. 4, 5 2.1, 2, 5	*15/07/07* *0700 - 1100*	*12/07/07* *1400*	*16/07/07* *1500*
Reports and information provided to colleagues/supervisor regarding faults or process critical variables identified by candidate.	Review of Witness Testimonies	1.1, 2, 3, 4, 5, 6 2.4, 5, 6	1.2, 3, 4, 5, 6 2.4, 5	*15/07/07* *0700 - 1100*	*12/07/07* *1400*	*16/07/07* *1500*
Records and logs completed by candidate recording relevant operational information.	Review of Logs and Records	1.5 2.5	All	*15/07/07* *0700 - 1100*	*12/07/07* *1400*	*16/07/07* *1500*
Candidate to complete OJT Questions for Oil & Gas Separation	Testing underpinning knowledge using pre-set questionnaire	1.2, 3, 4, 5 2.1, 2, 3, 4, 5	All	*15/07/07* *0700 - 1100*	*12/07/07* *1400*	*16/07/07* *1500*

THIS ASSESSMENT PLAN HAS BEEN AGREED WITH THE FOLLOWING PEOPLE:

Candidate's signature	*Phil Drummond*	Other party signature	*James Wilson*	Job title	Operations Supervisor
Assessor's signature	*Jack Weir*	Other party signature	*William Taylor*	Job title	Control Room Operator
Assessment plan date	*09 July 2007*	Other party signature		Job title	

Selecting methods of assessment

The methods of assessment you use should be valid, reliable and practicable.

- by *valid* we mean that the assessment method should be appropriate to the standards
- by *reliable* we mean that the assessment method should ensure consistent results when used with different candidates, different assessors and on different occasions
- by *practicable* we mean that the method ensures that the assessment takes into account of available resources, equipment and time

Competence assessments invariably involve using a range of assessment methods to cover all Performance Statements and underpinning knowledge for a Unit. Ideally, we would like to be able to observe our candidates meeting all the Performance Statements, and then we would ask a few questions to test underpinning knowledge, but this is not practical as we would have to be with the candidate all the time. Apart from anything else, this would be an extremely long drawn-out process. A more efficient way of assessing our candidate would be to use a variety of assessment methods, incorporating as much observation of natural performance as possible.

From the sample assessment plan on the previous page, you can see that four different methods of assessment were chosen to cover the entire Unit:

- **observation** of the candidate in the workplace
- **witness testimonies** in the form of peer reports from colleagues and supervisors
- **inspection of an output** by inspecting logs and records produced by the candidate
- **questioning** of the candidate to test underpinning knowledge

If we now look at Element 3.2.1, we can see how each method is used to cover the range of Performance Statements.

The candidate has been **observed** (2) ‘ensuring steady state conditions by ensuring appropriate process system throughput’, (1) ‘using appropriate work methods/techniques to achieve the required specifications’. During the observation, the assessor noted that the candidate (6) ‘worked safely and in accordance with operational instructions and associated Safe Systems of Work (SSOW)’.

The candidate provided further evidence for Performance Statements 1, 2, 3, 4, 5 and 6 in the form of **witness testimonies** that he was able to demonstrate this competence over a period of time. As it was unlikely during the observation that the candidate would have the opportunity to demonstrate his competence to ‘identify process system faults (3) and critical situations’ (4) and ‘take the

appropriate action', he also provided witness testimonies, as evidence for these Performance Statements.

The assessor **inspected** logs and records produced and maintained by the candidate to see whether he had (5) 'ensured that all information supplied and recorded is accurate, complete and legible'.

Although the majority of the underpinning knowledge and understanding requirements for this Element were demonstrated by the candidate during observation, the assessor used **questions** from a pre-set questionnaire bank to complete the assessment of this Element.

Benefits and challenges of workplace assessment

There are both benefits and challenges when you are assessing SVQs in the workplace, or in conditions of the workplace — when you select methods of assessment you should try to offer the candidate the benefits of workplace assessment and minimise any potential difficulties.

The benefits can include:

- assessment is conducted in the candidate's workplace under naturally-occurring conditions
- the candidate is familiar with the equipment and facilities being used
- documentary evidence is generated naturally as part of the operation being performed
- assessment plans can be arranged and/or modified as operational circumstances dictate

The challenges can include:

- assessment is conducted in the presence of the candidate's colleagues
- the assessor is part of the team carrying out the operation
- there is no qualified assessor present in the workplace when the naturally-occurring assessment opportunity arises, necessitating the use of alternative workplace observations by other technically competent persons
- the task and the assessment process is made more difficult by ambient conditions such as darkness and bad weather

3 Generating evidence

The methods of assessment you use should generate evidence which meets the Evidence Requirements section of the standards for the SVQ.

Observation

Observation of candidates in the workplace should be the method that generates the bulk of the evidence for this SVQ. With the exception of the Units covering *Control of Emergencies and Critical Situations*, it should be possible to observe candidates demonstrating performance for most of the standards.

Where observation is used, the assessor must use observation sheets or checklists, or produce statements that detail what was actually observed, how the activity was carried out, and which Performance Statement is being demonstrated.

You should also take advantage of naturally-occurring opportunities which provide evidence relating to other parts of the SVQ. This 'integrated approach' should be encouraged wherever possible, and you should advise your candidate when this type of observation is being made use of.

There is an example of an observation record on the next page.

Observation record

Unit/Element(s): PT3.4, Element 1 'Prepare plant and equipment for maintenance'

Candidate: Phil Drummond **Date of observation:** 12/05/07

Evidence index number: 20

Skills/activities observed:	**Performance Statements covered:**
Candidate preparing Oil Export Pump for mechanical maintenance work The candidate was given written instructions from his Team Leader to prepare the pump for intrusive maintenance. He discussed a plan for the preparation work with another production operator, and clearly set out and prioritised the tasks to be carried out. Appropriate isolation certificates, operating procedures and isolation risk assessments were identified and implemented.	1, 3, 4
The candidate was the PTW Area Authority for this task, and issued the risk assessment and work permit to the mechanical technician. He briefed the technician on the contents of the risk assessment, placing particular emphasis on the conditions and precautions to be taken by the work force. A 'team based' risk assessment was prepared by a team led by the candidate, in which hazards were identified, risks assessed and safety precautions and control measures identified.	2, 3, 6, 7
The candidate inspected the worksite prior to issuing the work permit to ensure that the preparation work was completed properly, and that it was tidy and free of hazards.	4

Knowledge and understanding apparent from this observation:
The candidate's knowledge of the Safe Systems of Work (SSOW) procedures and Production Direct Orders were apparent from the way that he used them.

Other Units/Elements to which this evidence may contribute:
C2.1 and C2.2
C7.1

Assessor's comments and feedback to candidate:
Sufficient performance evidence was provided during this observation to meet all the assessment criteria for this Element.

Although some knowledge evidence was demonstrated during this observation, it will be necessary to conduct a questioning session to obtain further knowledge evidence.

I can confirm the candidate's performance was satisfactory.

Assessor's signature: Jack Weir Date: 12/05/07

Candidate's signature: Phil Drummond Date: 12/05/07

Questioning for knowledge and understanding

You can use questioning to assess knowledge requirements that were not fully demonstrated during observations of the candidate. It may be that your candidates have demonstrated **what to do** in a given situation, and **how to do** it, but you need to know if they understand **why** it is done and what action they would take in **'what if …?'** situations.

Questioning should also be used to support evidence provided in the form of witness testimony, and where some of the Performance Statements have not been fully covered. The use of questioning in these instances will allow the candidate to demonstrate his knowledge of specific work methods, controls and procedures associated with the task.

The SVQs for Processing Operations: Hydrocarbons require that candidates possess a large amount of underpinning knowledge, most of which cannot normally be demonstrated during performance. For the underpinning knowledge and understanding requirement for Elements 2.4.1 (level 2) and 3.4.1 (level 3), for instance, a number of questions will need to be prepared to test your candidate's underpinning knowledge of the process, plant and equipment, composition and properties of various fluids etc. Questioning, in this instance, can be used to allow your candidates to demonstrate their underpinning knowledge and understanding of the process they are operating, and allow you to assess their fundamental knowledge of the plant and equipment utilised on the installation.

You will note that some of the Units in these SVQs share similar underpinning knowledge evidence requirements. It may well be advantageous to draw up a pre-set questionnaire sheet which cross-references the questions to the relevant Units. This will then leave just a few questions to be produced and covered during the assessment of each Unit. A mixture of oral and written questions should be considered, this would allow some flexibility and variety in the assessment process.

Product evaluation

'Product' in SVQs means anything that is produced by candidates in the course of their work — this could be a manufactured article, or records etc. You should assess the product against the standards or checklists drawn from the standards.

This method of assessment is not likely to be used very much in this SVQ in its literal interpretation, as there are very few tangible products to evaluate. It can, however be used where the standards call for the candidate to produce documents such as risk assessments, isolation certificates or work procedures. You do not have to observe the candidate throughout the entire operation, as you can inspect the 'products' provided as supporting evidence in the candidate's portfolio. You can supplement the assessment by asking questions, or requesting witness testimonies to support the documentary evidence.

It is important that there is clear-cut evidence of authenticity of such products, and again witness testimonies can be used to prove authenticity.

Other examples of 'products' are specifications, production records, QA records, SSOW records, and test records/results. All such documents must be validated as the candidate's own work, and clearly cross-referenced to the standards.

Simulation

Simulation is any structured assessment exercise involving a specific task which reproduces real-life situations. You should check the Evidence Requirements and Assessment Strategies for guidance on whether simulation is an acceptable method of assessment for a particular Unit or Element.

An obvious example of where simulation can be used for this SVQ is for Units C3, C4 and C5 which *deal with emergencies and critical situations*. We cannot create a real emergency or critical situation for the purposes of assessment, but we can observe a candidate's performance during a simulated exercise. It is important that the simulated circumstances are as realistic as possible, and that the candidate is using equipment and facilities that replicate the workplace as closely as possible. The use of a purpose-built simulator in an off-site training facility would be considered appropriate for this type of assessment.

It is also possible and acceptable to allow the use of simulated documents to be produced by candidates where naturally-occurring occasions are few and far between. An example of this would be for Elements PT2.4.1 and PT3.4.1 'Prepare plant and equipment for maintenance', where your candidate has to demonstrate knowledge of 'procedures for entry into confined spaces'. Your candidate could simulate the rarely-occurring confined space entry operation by producing a completed Permit to Work, incorporating all the necessary supporting documentation. You, as the assessor, would then examine the simulated documentation, and support your assessment by questioning the candidates, to allow them to demonstrate competence. You must be careful in circumstances such as this to ensure that candidates do not substitute simulated evidence for activities that can occur reasonably frequently.

Filling the gaps in candidates' evidence

It may be that your candidate has provided evidence for most of the Units but there are some gaps — for example, handling contingency situations.

There are several methods of filling gaps in evidence, including:

- simulation of an event
- giving your candidate a case study to complete — an example of this could be asking your candidate to complete a procedure to carry out a specific operation such as preparing a production well flowline for intrusive maintenance activities

- projects and assignments can also fill gaps — an example of this is where a candidate is assigned as a ‘shutdown co-ordinator’ and there are several opportunities to produce procedures and documentation for isolating and reinstating plant and equipment
- personal statements from your candidates on how they performed during appropriate previous circumstances, eg where candidates have prepared equipment for maintenance, and have retained the necessary supporting documents, they can produce a personal statement to accompany these documents
- personal statements from your candidates on how they would cover the aspects of an unusual task, should it occur. This would be particularly beneficial in demonstrating how they would handle a contingency situation, by reacting appropriately to make safe a potentially dangerous situation for the Element ‘Co-ordinate the response to emergencies’ (C5.3)

You could use questioning in all these examples to support assessment.

Integration

Identifying assessment of real work activities usually means designing an integrated assessment which draws on the contents of different Units. Evidence from integrated assessment should be cross-referenced to the original Performance Statements, Elements and Units for verification.

These SVQs lend themselves to integrated assessment, particularly when gathering evidence for Units C1, C2, C6 and C7.

An example

While you are observing your level 1 candidates for Element PT1.1.1 ‘Prepare and start up a process system’, they should be ‘conforming to all relevant requirements’, which give them the opportunity to gather evidence for Element C1.1.

During this same operation, there may be opportunities for your candidates to gather evidence for both Elements of Unit C6, *Establish and Maintain Effective Working Relationships with Others*. This type of operation invariably involves candidates working with others, reporting to their instructor/coach, and providing written and oral handovers.

Guidance and support to candidates

Feedback should be ongoing, and should relate to the Standards of Performance and Evidence Requirements.

You should provide guidance on the need for repeat assessments — and any shortfall in competence. These should be discussed in terms of ways to plan for re-assessment. Feedback to the candidate's line manager/mentor should be provided to encourage/support the candidate — and the mentor, if appropriate.

4 Judging evidence and making an assessment decision

Sufficiency of evidence

Evidence should cover the Performance Standards, knowledge and understanding and any other stipulated Evidence Requirements (including 'performance' vs 'knowledge' evidence etc). Remember — all the Performance Statements are mandatory, and evidence should show that they have all been covered.

The Unit Scope for all Units states that candidates must provide evidence across a range of items or systems therefore it is not possible that all Performance Statements for any Unit could be achieved during one assessment

The evidence requirements for all Units will also require that candidates generate a range of evidence to demonstrate involvement over a period of time in contributing to various aspects of operating/monitoring/controlling process systems (Elements PT1.2.1, 2.2.1, 3.2.1 and PTC 3.2.1). Sufficiency of evidence in these circumstances would require the candidate to provide:

- an observation report from an assessor who has observed the candidate operating/monitoring/controlling process systems on at least one assessment occasion
- witness testimonies from line managers and peers stating that the candidate has performed to one or more of the Performance Statements over a period of time
- daily log sheets, reports and records that support the candidate's claims — these documents would have to be validated as authentic and clearly attributable to the candidate
- pre-set questionnaire sheets to cover the range of underpinning knowledge requirements
- assessor-devised questions and/or personal statements from the candidate to 'fill gaps' not covered by any of the above

Authentication

Authentication is required where you have not observed performance at first hand — evidence can be checked by questioning candidates or by using witness testimony.

An example of evidence that would require to be authenticated in some way is where computer generated logs, reports and handover documents are provided.

These would require that the candidate signs these documents, and obtains counter-signatures from appropriate persons, stating that they are valid and attributable to the candidate.

Witness testimony

Witness testimony should be viewed as supporting evidence — it is unlikely to be sufficient in itself for an assessment decision to be made and would, normally, be supplemented by questioning candidates.

If it is used, you should, ideally, identify witnesses and opportunities for using their testimony during the assessment planning stage. The testimony should record what the candidate has demonstrated, how, and in what circumstances. It should also say who witnessed the candidate (including a description of the person's job-role or relationship to the candidate), and whether the witness is familiar with the standards. In judging the evidence, you will have to consider the value of the evidence from witness testimony.

Although witness testimonies should be viewed as supporting evidence, they are in fact used a great deal in these SVQs, because qualified workplace assessors are not usually able to be present at all assessment opportunities. Witness testimonies can be provided by, for example, appropriately qualified/experienced peers and line managers to provide supporting evidence of a candidate's competence over a period of time.

Witness testimonies would also provide appropriate evidence for Unit C7, *Create, Maintain and Enhance Productive Working Relationships.* Element C7.1, for example, requires witness testimonies from line managers, staff representatives, colleagues, customers and suppliers to demonstrate that the candidate has proved competent over all of the Performance Statements.

There is an example of a completed witness testimony overleaf.

Witness testimony

SVQ title and level:	Processing Operations: Hydrocarbons at level 3	
Candidate's name:	Phil Drummond	
Evidence index no:	15	
Index no of other evidence which this testimony relates to (if any):		
Element(s):	**Unit C7** Element 1 Element 2 Element 3	**Standards of Performance** 1, 2, 4, 6, 10 1, 2, 7, 8 1, 6
Date of evidence:	06 May 2007	
Name of witness:	Ian Smith	
Designation/relationship to candidate:	Operations Team Leader (immediate manager)	

Details of testimony:

Good working relationships have been established and maintained (C7.1.1)
Provides opportunities to discuss work related matters with relevant people (C7.1.2)
Provides useful advice within limits of own responsibility and expertise (C7.1.4)
Deals effectively with differences (C7.1.6)
Effectively communicates and records all relevant information on activities, progress, results and achievements (C7.2.1 and C7.3.1)
Effectively seeks information and advice (C7.2.2)
Effectively carries out job role (C7.2.7)
Works safely in accordance with operational requirements (C7.1.10, C7.2.8 and C7.3.6)

Comments (to be written in the witness's own handwriting to provide credibility to the testimony)

I have worked with Phil as his team leader for over three years, and can testify to all the above statements. I have always found Phil to be a conscientious worker who gets on well with all his colleagues.

He makes a major contribution in co-ordinating the day-to-day operations within his responsibility, and is a valued member of the team.

I can confirm the candidate's evidence is authentic and accurate.

Signed by witness: Ian Smith Date: 6/05/07

Witness (please tick the appropriate box)**:**

☐ Holds D32/D33 or A1 Award

☑ Is familiar with the SVQ standards to which the candidate is working

Recording achievement

You should retain all evidence — clearly referenced — for internal and external verification.

You should provide feedback to candidates.

Evidence resulting from questioning (oral or written) should also be retained.

If integrated assessment is used (linking Performance Statements or Elements across different Units) the evidence should be cross-referenced back to the relevant Units.

Recording documents may need to be counter-signed by the internal verifier.

5 Further Information

What else should I read?

The publications listed here provide additional information on how to implement SVQs. They can be ordered from SQA Sales — telephone 0141-242 2168. Please quote the publication code when making your order, and note that there may be a charge for some of these publications.

Assessor/Verifier Units: Assessment Guidance (DB1681, October 2002)

External Assessment Moderation in National Qualifications and Higher National Qualifications: a guide for centres (AA0892/2, December 2001)

Guide to Assessment and Quality Assurance for Colleges of Further Education (AA0841/2, December 2001)

Guide to Assessment and Quality Assurance for Employers and Training Providers (AA0842/2, December 2001)

Guidance on Special Assessment Arrangements (A0645/3, December 2001)

Quality Assurance Principles, Elements and Criteria (A0798, December 1998)

Operational Guide for Centres 2002/2003: Colleges (FA1601, September 2002)

Operational Guide for Centres 2002/2003: ETPs (FA1602, August 2002)

Appendix 1: Blank recording forms

Unit progress record

Qualification and level:

Candidate:

To achieve the whole qualification, you must prove competence in ___ **mandatory** Units and ___ **optional** Units.

Mandatory Units achieved

Unit Number	**Title**	**Assessor's Signature**	**Date**

Optional Units achieved

Index of evidence

SVQ title and level:

Evidence number	**Description of evidence**	**Included in portfolio (Yes/No) If no, state location**	**Sampled by the IV (initials and date)**

Unit:

Element:

Notes/Comments

The candidate has satisfied the Assessor and Internal Verifier that the performance evidence has been met.

Candidate: _____ **Date:** _____

Assessor: _____ **Date:** _____

Internal Verifier: _____ **Date:** _____

Personal statement

Date	Evidence index number	Details of statement	Links to other evidence (enter numbers)	Unit, Elements, PCs covered. Identify range also covered

Signed by candidate: _____

Date: _____

Observation record

Unit/Element(s):

Candidate: Date of observation:

Evidence index number:

Skills/activities observed:	PCs covered:	Range covered

Knowledge and understanding apparent from this observation:

Other Units/Elements to which this evidence may contribute:

Assessor's comments and feedback to candidate:

I can confirm the candidate's performance was satisfactory.

Assessor's signature: _____ **Date:** _____

Candidate's signature: _____ **Date:** _____

Witness testimony

SVQ title and level:	
Candidate's name:	
Evidence index no:	
Index no of other evidence which this testimony relates to (if any):	
Element(s):	
Range statement(s):	
Date of evidence:	
Name of witness:	
Designation/relationship to candidate:	
Details of testimony:	
I can confirm the candidate's evidence is authentic and accurate. **Signed by witness:** **Date:**	

Witness (please tick the appropriate box)**:**

☐ Holds A1/A2 Units or D32/D33 Award

☐ Is familiar with the SVQ standards to which the candidate is working

Record of questions and candidate's answers

Unit:	**Element(s):**
Evidence index number:	
Circumstances of assessment:	
List of questions and candidate's responses:	
Assessor's signature:	**Date:**
Candidate's signature:	**Date:**

Appendix 2: Award structures and supporting information

NOS Titles, Structures and Supporting Information

Unit No	Unit Titles	Level 1	Level 2	Level 3	Level 3 CRO
C1	Contribute To The Health And Safety Of The Working Environment	X	X		
C2	Monitor And Maintain Health, Environment And Safety Systems			X	X
C3	Assist With The Control Of Emergencies And Critical Situations	X			
C4	Contribute To The Control Of Emergencies And Critical Situations		X		
C5	Control Emergencies And Critical Situations			X	X
C6	Establish And Maintain Effective Working Relationships With Others	X	X		
C7	Create, Maintain And Enhance Productive Working Relationships			X	X
PT1.1	Start Up And Shut Down A Process System	X			
PT1.2	Monitor A Process System	X			
PT2.1	Prepare And Start Up Process Systems*		X		
PT2.2	Operate And Monitor Process Systems		X		
PT2.3	Prepare And Shut Down Process Systems*		X		
PT2.4	Isolate And De-Isolate Process Plant And Equipment		X		
PT3.1	Prepare And Start Up Integrated Process Systems*			X	
PT3.2	Operate And Monitor Integrated Process Systems			X	
PT3.3	Prepare And Shut Down Integrated Process Systems*			X	
PT3.4	Isolate And Reinstate Process Plant And Equipment			X	
PTC3.1	Prepare Integrated Process Systems For Remote Control Operation				X
PTC3.2	Remotely Control Integrated Process Systems				X
PTC3.3	Prepare And Shut Down Remote Integrated Process Systems*				X
PTC3.4	Facilitate The Maintenance Of Process Plant And Equipment				X

*revised Unit title

Where a Unit appears in more than one award (column), there may be the opportunity for credit transfer. The Awarding Body will provide suitable guidance on this issue.

Scope Specification for Processing Operations: Hydrocarbons

Level 1

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 two technical Units PT1.1, PT1.2. These Units must be achieved through **Performance Evidence** (including Knowledge) and by satisfying the requirements of **four Processes** (with no more than two Processes coming from any one System).

Level 2

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** (see Table 1) by achieving the four 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** Scope items. To ensure the requisite amount of competence in working with Hydrocarbons, candidates must demonstrate their competence in **at least two** of the following three 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 and 7
- Candidate B can choose to prove competence over Scope items 1, 2 and 3
- Candidate C can choose to prove competence over Scope items 2, 3 and 4

However:

- Candidate B **cannot** choose to prove competence over Scope items 1, 2 and 7 (because this does not ensure the required amount of competence in Hydrocarbons).

Level 3

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** (see Table 1) 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** Scope items. To ensure the requisite amount of competence in working with Hydrocarbons candidates must demonstrate their competence in **at least two** of the following three 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 of competence in Hydrocarbons).

Table 1

ID	Scope	No of processes	No. to be assessed	Performance Evidence (inc. Knowledge)	Knowledge Evidence Only
1	Wells	2	2	1	1
2	Oil Storage/Discharge Process	2	2	1	1
3	Gas Process	7	4	1	3
4	Oil/Gas Process and Export	6	4	1	3
5	Water Injection	3	3	1	2
6	Metering	3	2	1	1
7	Utilities	13	7	2	5

Table 2: Final List of Systems (Scope) and Processes

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