QUALIFICATION HANDBOOK

0640-22 Level 2 Diploma in Bulk Liquid Operations

August 2012 Version 1.0

City & Guilds

Qualification at a glance

Subject area	**Process Engineering**
City & Guilds number	0640-22
Age group approved	16+
Entry requirements	Level 2
Assessment	Portfolio of Evidence
Support materials	Centre handbook Assessment strategy
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	City & Guilds number	Accreditation number
Level 2 Diploma in Bulk Liquid Operations	0640-22	600/5765/8

Contents

1 Introduction

This document tells you what you need to do to deliver the qualification

Area	Description
Who is the qualification for?	For candidates who work or want to work in Bulk Liquid Operations, typically within the Oil & Gas sector.
What does the qualification cover?	It allows candidates to learn, develop and practise the skills required for employment and/or career progression in Bulk Liquid Operations.

Structure

To achieve the Level 2 Diploma in Bulk Liquid Operations, learners must achieve 39 credits from the mandatory units (216-223, 330-333). Additional units may be taken but they will not be counted towards the minimum credits required.

Level 2 Diploma in Bulk Liquid Operations			
Unit accreditation number	**City & Guilds unit number**	**Unit title**	**Credit value**
Mandatory			
A/600/3525	216	How to prepare pipelines and hoses within bulk liquid operations	3
F/600/3624	217	Establish and maintain effective working relationships within bulk liquid operations	2
H/600/3518	218	Monitor and maintain equipment and infrastructure within bulk liquid operations	2
H/600/3521	219	How to monitor and maintain equipment and infrastructure within bulk liquid operations	3

J/600/3625	220	How to establish and maintain effective working relationships within bulk liquid operations	3
L/600/3626	221	Contribute to the safety of bulk liquid operations	3
R/600/3627	222	How to contribute to the safety of bulk liquid operations	5
T/600/3524	223	Prepare pipelines and hoses within bulk liquid operations	2
F/600/3526	330	Control the transfer of bulk liquid products within bulk liquid operations	4
H/600/3616	331	Provide product control information within bulk liquid operations	4
K/600/3620	332	How to provide product control information within bulk liquid operations	4
L/600/3528	333	How to control the transfer of bulk liquid products within bulk liquid operations	4
Elective			
Y/600/3628	224	Clean and clear bulk liquid storage tanks within bulk liquid operations	3
R/600/3630	225	Package bulk liquid products within bulk liquid operations	3
Y/600/3631	226	How to package bulk liquid products within bulk liquid operations	4
D/600/3629	334	How to clean and clear bulk liquid storage tanks within bulk liquid operations	4

Centre requirements

Approval

Centres already offering City & Guilds qualifications

Centres that have offered the following qualifications will be automatically approved to deliver Bulk Liquid Operations qualifications:

- 0777-23 Level 2 NVQ in Bulk Liquid Warehousing .

Centres not already offering City & Guilds qualifications

To offer these qualifications, new centres will need to gain both centre and qualification approval. Please refer to the Centre Manual - Supporting Customer Excellence for further information.

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

Resource requirements

Physical resources and site agreements

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

Centre staffing

Staff delivering this qualification must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the area for which they are delivering training and/or have experience of providing training. This knowledge must be above or to the same level as the training being delivered
- hold the Level 2 Diploma in Bulk Liquid Operations, or an equivalent qualification
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal quality assurer, but cannot quality assure their own assessments.

Assessors and internal quality assurers

Level 3 TAQA Award in Assessing Competence in the Work Environment or Assessor/Verifier (A/V) units are valued as qualifications for centre staff, but they are not currently a requirement for the qualifications

Continuing professional development (CPD)

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

Candidate entry requirements

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

Age restrictions

City & Guilds cannot accept any registrations for candidates under 16 as these qualifications are not approved for under 16s.

2 Delivering the qualification

Initial assessment and induction

An initial assessment of each candidate should be made before the start of their programme to identify:

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

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

Recording documents

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

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

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

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

3 Assessment

Assessment of the qualification

Candidates must:

- have a completed portfolio of evidence for each unit.

Assessment strategy

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

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

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

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

Cogent SSC Limited
Unit 5
Mandarin Court
Centre Park
Warrington
WA1 1GG
Tel: 01925 515200
Fax: 01925 515240

4 Units

Availability of units

The following units can also be obtained from the centre resources section of the **City & Guilds website**, or are available on **The Register of Regulated Qualifications** .

Structure of units

These units each have the following:

- City & Guilds reference number
- unit accreditation number
- title
- level
- credit value
- endorsement by a sector or other appropriate body
- information on assessment
- learning outcomes which are comprised of a number of assessment criteria
- notes for guidance.

Unit 216 How to prepare pipelines and hoses within bulk liquid operations

UAN:	**A/600/3525**
Level:	Level 2
Credit value:	3
GLH:	30
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know the types and principles of use of rigging equipment
Assessment criteria
The learner can: 1.1 describe the types and principles of use of rigging equipment (eg connectors, jointing materials, fasteners, hoses).

Learning outcome
The learner will: 2. Know how to prepare pipelines and hoses
Assessment criteria
The learner can: 2.1 describe how to make connections (eg correct type, number, size of fastener, leakage prevention, complete line, secure line) 2.2 explain the meaning of the signs and symbols used to denote hose test conditions 2.3 describe fastening requirements and tightening techniques 2.4 explain how and when to vent air and vapour 2.5 describe how and when to recover vapour.

Learning outcome
The learner will: 3. Know how to check pipelines and deal with problems
Assessment criteria
The learner can: 3.1 describe how to check the integrity of pipelines 3.2 describe the causes and signs of pressure problems 3.3 describe how to de-pressurise pipelines and hoses.

Learning outcome
The learner will: 4. Know the operational procedures in relation to preparing pipelines and hoses
Assessment criteria
The learner can: 4.1 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 4.2 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 4.3 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 4.4 identify the information to communicate (eg written, verbal, electronic) and to whom.

Unit 216 How to prepare pipelines and hoses within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- rigging lines and setting valves on pipeline systems
- filling pipelines with product
- displacing pipeline and hose contents.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them**.

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the signs of pressure problems in pipelines and hoses (eg abnormal gauge readings, joint and valve leakage including valve passing, lifting of pressure relief valves)
- the cases of pressure problems in pipelines and hoses (eg line typography, pumping rates, influence of ambient temperature)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 217 Establish and maintain effective working relationships within bulk liquid operations

UAN:	**F/600/3624**
Level:	Level 2
Credit value:	2
GLH:	6
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to exchange information on work area at handover
Assessment criteria
The learner can: 1.2 ensure that the information exchanged provides a full, clear and accurate description of the current status of the work area 1.3 clarify and confirm any information that is unclear or conflicting **before** acceptance 1.4 identify the implications of changing plant conditions on further work 1.5 carry out the handover with appropriate people at the designated time and location.

Learning outcome
The learner will: 2. Be able to complete documentation
Assessment criteria
The learner can: 2.1 complete all relevant documentation accurately.

Learning outcome
The learner will: 3. Be able to establish and maintain effective working relationships with colleagues and others
Assessment criteria
The learner can: 3.1 interact with colleagues and others in an appropriate manner.

Learning outcome
The learner will: 4. Be able to communicate relevant information as appropriate
Assessment criteria
The learner can: 4.1 provide relevant others (to include contractors and visitors) with clear and sufficient (oral, written and visual) information to meet identified needs 4.2 provide clear, accurate and prompt information to colleagues and others 4.3 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 5. Be able to follow operational procedures in relation to establishing and maintaining effective working relationships
Assessment criteria
The learner can: 5.1 work safely in accordance with operational requirements.

Unit 217 Establish and maintain effective working relationships within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to establish and maintain effective working relationships within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about establishing and maintaining effective working relationships. The individual will be involved in activities such as:

- exchanging information on work area at handover
- establishing and maintaining effective working relationships with colleagues and others.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- the implications of relevant statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the implications of the relevant fiscal and excise requirements
- the implications of poor communication
- the need for good relationships
- the need for a proper handover and the impact of an inadequate handover
- the means to ensure information given has been effectively received
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 218 Monitor and maintain equipment and infrastructure within bulk liquid operations

UAN:	**H/600/3518**
Level:	Level 2
Credit value:	2
GLH:	4
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to monitor and maintain product storage conditions
Assessment criteria
The learner can: 1.1 carry out inspections at the appropriate frequency 1.2 perform complete, logical and systematic investigation of suspected malfunction 1.3 take appropriate action to restore product storage conditions.

Learning outcome
The learner will: 2. Be able to communicate all relevant information
Assessment criteria
The learner can: 2.1 communicate all relevant information to appropriate people.

Learning outcome
The learner will: 3. Be able to clean operational equipment
Assessment criteria
The learner can: 3.1 prepare the equipment for cleaning 3.2 use appropriate cleaning agents and techniques 3.3 ensure that cleaned equipment is left in an appropriate condition and location 3.4 remove, dispose and replace equipment where appropriate 3.5 dispose of draining's, bottoms and washings.

Learning outcome
The learner will: 4. Be able to follow operational procedures in relation to monitoring and maintaining equipment and infrastructure
Assessment criteria
The learner can: 4.1 work safely in accordance with operational requirements.

Unit 218 Monitor and maintain equipment and infrastructure within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to monitor and maintain equipment and infrastructure within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- monitoring and maintaining product storage conditions
- cleaning operational equipment.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- how to clarify unclear or conflicting information
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the principles of monitoring atmosphere, water, temperature, pressure and product volume
- the characteristics and requirements of logical, systematic investigation
- how to recognise damaged and distressed equipment and infrastructure (to include bunding)
- the location of all relevant safety systems and equipment
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 219 How to monitor and maintain equipment and infrastructure within bulk liquid operations

UAN:	**H/600/3521**
Level:	Level 2
Credit value:	3
GLH:	30
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know why the inspection is being carried out
Assessment criteria
The learner can: 1.1 describe the purpose of the inspection (eg routine inspection, inspection in response to observed problems, inspecting for distress, damage, poor functioning).

Learning outcome
The learner will: 2. Know how to identify signs of distress and damage and poor functioning
Assessment criteria
The learner can: 2.1 describe the signs of distress and damage and poor functioning (eg physical damage, corrosion, leakage, joint distortion, out of date certification) 2.2 illustrate the information, and the format, required by the appropriate authority in relation to distress and damage and poor functioning (eg location, extent, possible causes).

Learning outcome
The learner will: 3. Know the range of actions available to restore product storage conditions
Assessment criteria
The learner can: 3.1 explain the range of actions available in the light of previous treatments applied 3.2 describe the appropriate actions to take to restore product storage conditions (eg draining off excess water) 3.3 describe what to do when the conditions cannot be restored.

Learning outcome
The learner will: 4. Know how to clean and maintain operational equipment
Assessment criteria
The learner can: 4.1 describe the range of equipment to be cleaned (eg filters) 4.2 explain how to prepare equipment for cleaning (eg isolating, disconnecting, disassembling) 4.3 describe the range of techniques, agents and cleaning equipment and when to use them 4.4 describe how to replace equipment 4.5 explain their responsibilities regarding disconnecting and disassembling the equipment.

Learning outcome
The learner will: 5. Know the disposal techniques and locations
Assessment criteria
The learner can: 5.1 describe the disposal techniques and locations.

Learning outcome
The learner will: 6. Know the operational procedures in relation to monitoring and maintaining equipment and infrastructure
Assessment criteria
The learner can: 6.1 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 6.2 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 6.3 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 6.4 describe the characteristics and requirements of logical, systematic investigation 6.5 describe the location of all relevant safety systems and equipment 6.6 identify the information to communicate (eg written, verbal, electronic) and to whom 6.7 explain how to clarify unclear or conflicting information.

Unit 219 How to monitor and maintain equipment and infrastructure within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- monitoring and maintaining product storage conditions
- cleaning operational equipment.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- how to clarify unclear or conflicting information
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the principles of monitoring atmosphere, water, temperature, pressure and product volume
- the characteristics and requirements of logical, systematic investigation
- how to recognise damaged and distressed equipment and infrastructure (to include bunding)
- the location of all relevant safety systems and equipment
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 220 How to establish and maintain effective working relationships within bulk liquid operations

UAN:	**J/600/3625**
Level:	Level 2
Credit value:	3
GLH:	30
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know the significance of effective handovers
Assessment criteria
The learner can: 1.1 describe how to access and use relevant documentation (eg handover logs, permits) 1.2 describe how the handover log relates to the overall safety and status of plant, equipment and operations 1.3 explain the relevance of each log item to the operation of the plant 1.4 explain the need for proper handover and the impact of an inadequate handover.

Learning outcome
The learner will: 2. Know how to establish and maintain effective working relationships with colleagues and others
Assessment criteria
The learner can: 2.1 identify those likely to be encountered in the workplace (to include colleagues, contractors and visitors) 2.2 explain the need for good relationships.

Learning outcome
The learner will: 3. Know how to communicate relevant information and to whom
Assessment criteria
The learner can: 3.1 describe how to recognise reasonable requests 3.2 describe what is considered essential information 3.3 identify the relevant personnel who are to give information to them 3.4 explain the implications of poor communication 3.5 describe the means to ensure information given has been effectively received 3.6 identify the information to communicate (eg written, verbal, electronic) and to whom.

Learning outcome
The learner will: 4. Know the operational procedures in relation to establishing and maintaining effective working relationships
Assessment criteria
The learner can: 4.1 describe their responsibilities in relation to their work area 4.2 explain the reasons for taking particular readings and measurements and their significance 4.3 describe the appropriate procedures to follow (eg company grievance/disciplinary procedures) when a working relationship has broken down 4.4 describe how to identify, control and minimise work area hazards as they apply to colleagues and others 4.5 explain the implications of relevant statutory (eg HASAWA and COSHH) and organisational requirements 4.6 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 4.7 explain the implications of the relevant fiscal and excise requirements.

Unit 220 How to establish and maintain effective working relationships within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about establishing and maintaining effective working relationships.

The individual will be involved in activities such as:

- exchanging information on work area at handover
- establishing and maintaining effective working relationships with colleagues and others.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- the implications of relevant statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the implications of the relevant fiscal and excise requirements
- the implications of poor communication
- the need for good relationships
- the need for a proper handover and the impact of an inadequate handover
- the means to ensure information given has been effectively received
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 221 Contribute to the safety of bulk liquid operations

UAN:	**L/600/3626**
Level:	Level 2
Credit value:	3
GLH:	20
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to maintain a safe working area
Assessment criteria
The learner can: 1.1 ensure that clear access to and egress from working area is maintained at all times 1.2 keep working area clean and tidy in accordance with requirements 1.3 keep clear all escape routes and access to emergency and safety equipment.

Learning outcome
The learner will: 2. Be able to report incidents, hazardous conditions and emergencies
Assessment criteria
The learner can: 2.1 accurately verify the nature, location and scope of incident 2.2 effectively raise the appropriate alarms 2.3 report the incident to the appropriate people in accordance with site reporting procedures.

Learning outcome
The learner will: 3. Be able to communicate relevant information as appropriate
Assessment criteria
The learner can: 3.1 provide accurate and unambiguous information to the appropriate people 3.2 effectively inform appropriate people as actions are taken.

Learning outcome
The learner will: 4. Be able to contribute to the correction of incidents, hazardous conditions and emergencies
Assessment criteria
The learner can: 4.1 take the correct actions, in accordance with procedures, to deal with the incident 4.2 effectively minimise the incident, hazard or emergency 4.3 effectively minimise waste and loss 4.4 correctly modify actions in response to changing conditions.

Learning outcome
The learner will: 5. Be able to follow operational procedures in relation to contributing to the safety of bulk liquid operations
Assessment criteria
The learner can: 5.2 work safely in accordance with operational requirements 5.3 contribute to the assessment of risk 5.4 ensure that only authorised people are allowed access to the work area 5.5 return safety equipment and tools to designated areas after use and report any defects.

Unit 221 Contribute to the safety of bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to contribute to the safety of bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about the individual's contribution to the safety aspects of working in a bulk liquid environment. This unit deals with the following:

- maintaining a safe working area
- reporting incidents, hazardous conditions and emergencies
- contributing to the correction of incidents, hazardous conditions and emergencies.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- site emergency procedures
- the site layout and working area (to include the location and position of emergency exits, muster points and emergency equipment)
- the potential hazards associated with the particular working area
- the types of activity occurring, and possible hazards, in adjacent areas
- their own responsibilities and duties
- the reasons for use of safety equipment and devices and protective clothing
- the procedures for obtaining medical assistance

- the safety roles of others
- the appropriate responses to alarms (eg fire, gas)
- the potential hazards associated with work procedures and the safety precautions required
- the relevance of risk assessment in the workplace
- their duties under current environmental legislation
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 222 How to contribute to the safety of bulk liquid operations

UAN:	**R/600/3627**
Level:	Level 2
Credit value:	5
GLH:	43
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know how to maintain a safe working area
Assessment criteria
The learner can: 1.1 describe how to keep the working area satisfactorily clean and tidy 1.2 describe the potential incidents within their area of responsibility and the action to be taken 1.3 identify the types of activity occurring, and possible hazards, in adjacent areas 1.4 identify the potential hazards associated with work procedures and the safety precautions required.

Learning outcome
The learner will: 2. Know how to deal with a safety hazard
Assessment criteria
The learner can: 2.1 describe the appropriate actions to take on identification of safety hazards, for example: • rectification of hazard • prompt reporting • discontinuation of work • making affected others, including contractors, company personnel and visitors, aware of the hazard • directing affected others to a safe area 2.2 explain the effect of an emergency (eg on personnel, equipment, site, environment).

Learning outcome
The learner will: 3. Know the types of incident to report
Assessment criteria
The learner can: 3.1 identify the types of incidents which should be reported (eg fire, flood, uncontrolled release of product, explosion, injured person, equipment or service failure).

Learning outcome
The learner will: 4. Know the first response to an incident
Assessment criteria
The learner can: 4.1 describe the procedure for responding at an early stage of an incident (eg fire, flood, uncontrolled release of product, explosion, injured person, equipment or service failure) 4.2 explain how the alarm should be raised for each type of incident 4.3 explain the procedures for obtaining medical assistance 4.4 describe the appropriate first response to casualties 4.5 explain the appropriate responses to alarms (eg fire, gas).

Learning outcome
The learner will: 5. Know the information to communicate in order to operate safely
Assessment criteria
The learner can: 5.1 identify the information to communicate (eg written, verbal, electronic) and to whom.

Learning outcome
The learner will: 6. Know how the site layout impacts on safety
Assessment criteria
The learner can: 6.1 describe the site layout and working area (to include the location and position of emergency exits, muster points and emergency equipment) 6.2 explain the site emergency procedures 6.3 explain how to access, interpret and implement site emergency plans and procedures (eg environmental).

Learning outcome
The learner will: 7. Know the roles of self and others when there is a safety issue
Assessment criteria
The learner can: 7.1 describe their own responsibilities during emergencies 7.2 describe the safety roles of others.

Learning outcome
The learner will: 8. Know the importance of having emergency equipment in good order and how it adds to the safety of the work environment
Assessment criteria
The learner can: 8.1 explain how to identify and report defects in safety equipment and approved tools 8.2 describe the need for and use of specified emergency equipment 8.3 explain the reasons for use of safety equipment and devices and protective clothing.

Learning outcome
The learner will: 9. Know the operational procedures in relation to contributing to the safety of bulk liquid operations
Assessment criteria
The learner can: 9.1 describe the procedures for dealing with unauthorised people in the work area 9.2 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 9.3 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 9.4 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 9.5 explain the relevance of risk assessment in the workplace 9.6 explain their duties under current environmental legislation.

Unit 222 How to contribute to the safety of bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about the individual's contribution to the safety aspects of working in a bulk liquid environment. This unit deals with the following:

- maintaining a safe working area
- reporting incidents, hazardous conditions and emergencies
- contributing to the correction of incidents, hazardous conditions and emergencies.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- site emergency procedures
- the site layout and working area (to include the location and position of emergency exits, muster points and emergency equipment)
- the potential hazards associated with the particular working area
- the types of activity occurring, and possible hazards, in adjacent areas
- their own responsibilities and duties
- the reasons for use of safety equipment and devices and protective clothing

- the procedures for obtaining medical assistance
- the safety roles of others
- the appropriate responses to alarms (eg fire, gas)
- the potential hazards associated with work procedures and the safety precautions required
- the relevance of risk assessment in the workplace
- their duties under current environmental legislation
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 223 Prepare pipelines and hoses within bulk liquid operations

UAN:	**T/600/3524**
Level:	Level 2
Credit value:	2
GLH:	6
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to make essential checks when preparing pipelines and hoses
Assessment criteria
The learner can: 1.1 ensure that rigging equipment used conforms to the job specification 1.2 ensure that all relevant valves are checked and set correctly 1.3 check the integrity of pipelines 1.4 ensure that the displacement medium, equipment and techniques are appropriate 1.5 ensure that the amount of product remaining on completion is within given limits.

Learning outcome
The learner will: 2. Be able to prepare pipelines and hoses
Assessment criteria
The learner can: 2.1 correctly make all connections 2.2 correctly set all valves 2.3 correctly fill the appropriate pipelines 2.4 vent the air and vapour as appropriate 2.5 effectively set and secure the pipelines.

Learning outcome
The learner will: 3. Be able to communicate relevant information about preparing pipelines and hoses
Assessment criteria
The learner can: 3.1 ensure that confirmation is received regarding ullage and any other relevant tank movements 3.2 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 4. Be able to follow operational procedures in relation to preparing pipelines and hoses
Assessment criteria
The learner can: 4.1 use safe lifting and moving techniques 4.2 work safely in accordance with operational requirements.

Unit 223 Prepare pipelines and hoses within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to prepare pipelines and hoses within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- rigging lines and setting valves on pipeline systems
- filling pipelines with product
- displacing pipeline and hose contents.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them**.

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the signs of pressure problems in pipelines and hoses (eg abnormal gauge readings, joint and valve leakage including valve passing, lifting of pressure relief valves)
- the cases of pressure problems in pipelines and hoses (eg line typography, pumping rates, influence of ambient temperature)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 224 Clean and clear bulk liquid storage tanks within bulk liquid operations

UAN:	**Y/600/3628**
Level:	Level 2
Credit value:	3
GLH:	4
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to prepare for the cleaning of storage tanks
Assessment criteria
The learner can: 1.1 correctly empty the tank in accordance with work instructions 1.2 ensure removal of vapour in accordance with targets 1.3 safely transfer the residues to the appropriate locations and containers 1.4 safely apply neutralising agents where appropriate.

Learning outcome
The learner will: 2. Be able to check operational requirements that the tank is ready for cleaning and clearing of product
Assessment criteria
The learner can: 2.1 ensure that they have the appropriate permits, method statements and risk assessments 2.2 obtain appropriate confirmation that tank is sufficiently free of product and vapour to proceed 2.3 ensure that the tank is appropriately and securely isolated prior to and during internal working 2.4 ensure that the work area is clear of unauthorised personnel before cleaning commences.

Learning outcome
The learner will: 3. Be able to clean and clear tanks of product
Assessment criteria
The learner can: 3.1 correctly perform cleaning and clearing operations.

Learning outcome
The learner will: 4. Be able to communicate relevant information about cleaning and clearing bulk liquid storage tanks
Assessment criteria
The learner can: 4.1 report any difficulties in emptying to the appropriate person 4.2 ensure that the containers for transfer or holding of residual product are appropriately marked 4.3 effectively notify the appropriate person on completion of activity 4.4 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 5. Be able to follow operational procedures in relation to cleaning and clearing bulk liquid storage tanks
Assessment criteria
The learner can: 5.1 use safe lifting and moving techniques 5.2 ensure safe and efficient use of equipment 5.3 work safely in accordance with operational requirements.

Unit 224 Clean and clear bulk liquid storage tanks within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to clean and clear bulk liquid storage tanks within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- preparing for the cleaning of storage tanks
- cleaning and clearing tanks of product.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 225 Package bulk liquid products within bulk liquid operations

UAN:	**R/600/3630**
Level:	Level 2
Credit value:	3
GLH:	4
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to prepare to fill and secure receptacles
Assessment criteria
The learner can: 1.1 ensure appropriate stocks of consumables are available 1.2 effectively confirm that the system is ready for use 1.3 correctly select the appropriate receptacles 1.4 ensure that the filling system is appropriate to the nature of the product.

Learning outcome
The learner will: 2. Be able to fill and secure receptacles
Assessment criteria
The learner can: 2.1 correctly use ancillary equipment 2.2 correctly secure and connect the system and earthing connections 2.3 correctly fill the receptacle 2.4 correctly use sealing and securing devices.

Learning outcome
The learner will: 3. Be able to decommission and clean equipment and systems
Assessment criteria
The learner can: 3.1 ensure that gulleys and drainage channels are free of obstruction and clear of contamination 3.2 ensure that hoses and sumps are clear of product and valves are shut prior to disconnection from line 3.3 correctly disconnect all relevant equipment 3.4 correctly blank off flanges and hoses 3.5 use the correct cleaning agents and techniques.

Learning outcome
The learner will: 4. Be able to stow packaged products
Assessment criteria
The learner can: 4.1 correctly store the receptacles in an appropriate location.

Learning outcome
The learner will: 5. Be able to communicate relevant information
Assessment criteria
The learner can: 5.1 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 6. Be able to follow operational procedures in relation to packaging bulk liquid products
Assessment criteria
The learner can: 6.1 work safely in accordance with operational requirements.

Unit 225 Package bulk liquid products within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.
This unit should not be taken prior to taking 'How to package bulk liquid products within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- preparing, filling and securing receptacles
- decommissioning and cleaning equipment and systems
- stowing packaged products.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- how to use safe lifting and handling techniques
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 226 How to package bulk liquid products within bulk liquid operations

UAN:	**Y/600/3631**
Level:	Level 2
Credit value:	4
GLH:	40
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know how to prepare to fill and secure receptacles
Assessment criteria
The learner can: 1.1 describe the nature and purpose of consumables (eg labels, sealing devices, securing devices) 1.2 describe how to ensure that the isolation and containment devices and equipment are in full working order 1.3 describe how to secure and connect the system and earthing connections to the correct product lines 1.4 describe how to select the appropriate receptacle (eg considerations of type, condition, cleanliness, volume, dryness).

Learning outcome
The learner will: 2. Know how to fill and secure receptacles
Assessment criteria
The learner can: 2.1 explain how to position the receptacle 2.2 describe the range of filling systems available to them 2.3 describe how to correctly fill the receptacle (eg specified weight or volume of product) 2.4 explain how to deal with overfills 2.5 describe how to use sealing and securing devices (eg suitability, leakage prevention) 2.6 describe the information required on the receptacles.

Learning outcome
The learner will: 3. Know how to decommission and clean equipment and systems
Assessment criteria
The learner can: 3.1 describe the range of cleaning agents and techniques available to them 3.2 describe the properties of the residual product 3.3 describe how to leave the system and equipment in an appropriate condition.

Learning outcome
The learner will: 4. Know how to stow packaged products
Assessment criteria
The learner can: 4.1 describe how to minimise the risks associated with stacking of receptacles (eg position, orientation, extent of covering).

Learning outcome
The learner will: 5. Know the operational procedures in relation to packaging bulk liquid products
Assessment criteria
The learner can: 5.1 explain the principles of use of ancillary equipment (eg safety, product control, product measurement) 5.2 describe how to deal with leakage 5.3 describe how to deal with leaking or damaged receptacles 5.4 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 5.5 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 5.6 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 5.7 describe how to use safe lifting and handling techniques 5.8 identify the information to communicate (eg written, verbal, electronic) and to whom.

Unit 226 How to package bulk liquid products within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- preparing, filling and securing receptacles
- decommissioning and cleaning equipment and systems
- stowing packaged products.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- how to use safe lifting and handling techniques
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 330 Control the transfer of bulk liquid products within bulk liquid operations

UAN:	**F/600/3526**
Level:	Level 3
Credit value:	4
GLH:	6
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to make checks prior to controlling the transfer of bulk liquid products
Assessment criteria
The learner can: 1.1 receive appropriate authority to proceed 1.2 ensure that transfer pipeline system is correctly set up.

Learning outcome
The learner will: 2. Be able to control the transfer of bulk liquid products
Assessment criteria
The learner can: 2.1 correctly carry out control actions 2.2 effectively maintain the product flow rate and nature of the product throughout the movement 2.3 select hoses which are fit for purpose 2.4 correctly make all connections 2.5 safely and promptly relieve excess pressure.

Learning outcome
The learner will: 3. Be able to make checks when controlling the transfer of bulk liquid products
Assessment criteria
The learner can: 3.1 make all necessary checks before disconnection 3.2 ensure that flanges are correctly isolated and/or blanked off as appropriate.

Learning outcome
The learner will: 4. Be able to communicate relevant information about controlling the transfer of bulk liquid products
Assessment criteria
The learner can: 4.1 receive appropriate confirmation that the required quantities have been received 4.2 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 5. Be able to follow operational procedures in relation to controlling the transfer of bulk liquid products
Assessment criteria
The learner can: 5.1 use safe lifting and moving techniques 5.2 work safely in accordance with operational requirements.

Unit 330 Control the transfer of bulk liquid products within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to control the transfer of bulk liquid products within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- controlling and transfer of products
- connecting and disconnecting transfer systems.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 331 Provide product control information within bulk liquid operations

UAN:	**H/600/3616**
Level:	Level 3
Credit value:	4
GLH:	6
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Be able to prepare to provide product control information
Assessment criteria
The learner can: 1.1 properly obtain containers appropriate for the sample material 1.2 properly obtain and use appropriate PPE 1.3 accurately identify the location of the nearest safety equipment.

Learning outcome
The learner will: 2. Be able to take samples
Assessment criteria
The learner can: 2.1 take samples using the appropriate specified method 2.2 effectively minimise the potential hazards according to the nature of the sample 2.3 correctly reinstate source conditions.

Learning outcome
The learner will: 3. Be able to maintain the integrity of the sample
Assessment criteria
The learner can: 3.1 ensure that the integrity of the sample is maintained 3.2 ensure that the sample is fully identified by recording and labelling and promptly taken to the designated point.

Learning outcome
The learner will: 4. Be able to check measurement equipment
Assessment criteria
The learner can: 4.1 ensure that the measurement equipment is fit for purpose before and after use

Learning outcome
The learner will: 5. Be able to take measurements and perform calculations
Assessment criteria
The learner can: 5.1 effectively maintain the integrity of the product and environmental conditions throughout 5.2 correctly take and record measurements 5.3 accurately perform all calculations 5.4 accurately and fully investigate all unexpected results.

Learning outcome
The learner will: 6. Be able to blend and add materials
Assessment criteria
The learner can: 6.1 confirm that the correct quantities are available 6.2 ensure that the prepared materials are stored and labelled as appropriate 6.3 effectively avoid contamination of all mixing and handling equipment and preparation area 6.4 correctly add the materials to product.

Learning outcome
The learner will: 7. Be able to communicate relevant product control information
Assessment criteria
The learner can: 7.1 communicate all relevant information to the appropriate people.

Learning outcome
The learner will: 8. Be able to follow operational procedures in relation to providing product control information
Assessment criteria
The learner can: 8.1 work safely in accordance with operational requirements.

Unit 331 Provide product control information within bulk liquid operations

Supporting information

Guidance

This unit should be assessed in a work environment and is subject to the requirements set out in the Cogent Assessment Strategy.

This unit should not be taken prior to taking 'How to provide product control information within bulk liquid operations'.

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about the individual's contribution to taking samples for analysis. This unit deals with the following:

- taking samples
- taking measurements and performing calculations
- blending and adding materials.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate:

- the range of activities relevant to the workplace
- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 332 How to provide product control information within bulk liquid operations

UAN:	**K/600/3620**
Level:	Level 3
Credit value:	4
GLH:	32
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know how to take samples
Assessment criteria
The learner can: 1.1 identify the different types of containers used and their specific uses 1.2 describe how to reinstate source conditions (eg re-establish equipment integrity, close dip-hatch, reinstate nitrogen blanket).

Learning outcome
The learner will: 2. Know how to check measurement equipment
Assessment criteria
The learner can: 2.1 explain the importance of well maintained equipment 2.2 describe how to ensure that the measurement equipment (eg dip tape, weigh-scales, thermometers, gauges, meters) is fit for purpose (eg calibration, condition, capability, range) both before and after measurement (eg cleaning).

Learning outcome
The learner will: 3. Know how to take measurements and perform calculations
Assessment criteria
The learner can: 3.1 explain how to perform the relevant calculations (eg use of industry/HMC&E approved formulae, appropriate calibration charts, data accuracy eg product temperature, dip and ullage measurements, weight measurements) 3.2 describe how to recognise and deal with unexpected results 3.3 identify the units in which the materials are measured.

Learning outcome
The learner will: 4. Know how to blend and add materials
Assessment criteria
The learner can: 4.1 explain the principles of contamination avoidance.

Learning outcome
The learner will: 5. Know the operational procedures in relation to providing product control information
Assessment criteria
The learner can: 5.1 describe how to deal with spillage 5.2 explain how to conform with, and respond to, relevant specifications and regulations (eg relating to the quality, dilution and quantities of the material) 5.3 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 5.4 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 5.5 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 5.6 identify the information to communicate (eg written, verbal, electronic) and to whom.

Unit 332 How to provide product control information within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit is about the individual's contribution to taking samples for analysis. This unit deals with the following:

- taking samples
- taking measurements and performing calculations
- blending and adding materials.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- the range of activities relevant to the workplace
- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 333 How to control the transfer of bulk liquid products within bulk liquid operations

UAN:	**L/600/3528**
Level:	Level 3
Credit value:	4
GLH:	38
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know the principles of product movement control
Assessment criteria
The learner can: 1.1 explain the principles of product movement control (eg valve operation, sequence, direction, tank ullage).

Learning outcome
The learner will: 2. Know how to control the transfer of bulk liquid products
Assessment criteria
The learner can: 2.1 describe how to maintain product flow rate taking account of the nature of the product 2.2 explain how to identify and resolve irregularities 2.3 explain how to make connections (eg correct type, number, size of fastener, gasket type, leakage prevention, complete line, secure line).

Learning outcome
The learner will: 3. Know how to check transfer systems
Assessment criteria
The learner can: 3.1 describe how to ensure that lines and hoses are clear of product, and valves at each end of the linkage are shut before connection and disconnection.

Learning outcome
The learner will: 4. Know the operational procedures in relation to controlling the transfer of bulk liquid products
Assessment criteria
The learner can: 4.1 describe safe lifting and moving techniques and how these apply to the control of the transfer of bulk liquid products 4.2 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 4.3 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 4.4 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules) 4.5 identify the information to communicate (eg written, verbal, electronic) and to whom.

Unit 333 How to control the transfer of bulk liquid products within bulk liquid operations

Supporting information

Guidance

This unit is subject to the requirements set out in the Cogent Assessment Strategy.
The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- controlling and transfer of products
- connecting and disconnecting transfer systems.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Unit 334 How to clean and clear bulk liquid storage tanks within bulk liquid operations

UAN:	**D/600/3629**
Level:	Level 3
Credit value:	4
GLH:	34
Endorsement by a sector or regulatory body:	This unit is endorsed by Cogent, the Sector Skills Council for Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymers

Learning outcome
The learner will: 1. Know how to prepare for the cleaning of storage tanks
Assessment criteria
The learner can: 1.1 state the appropriate product levels to allow emptying to begin 1.2 describe the principles of siting equipment (eg tank construction, product characteristics, vapour removal method, weather conditions) for maximum removal of vapour and equipment operation 1.3 explain the importance of secure isolation.

Learning outcome
The learner will: 2. Know the range of de-gassing techniques available
Assessment criteria
The learner can: 2.1 describe the range of de-gassing techniques available to them (eg convection, steam evaporation, flushing with gas, flushing with water) and how to apply them.

Learning outcome
The learner will: 3. Know the importance of information exchange
Assessment criteria
The learner can: 3.1 identify the information to communicate (eg written, verbal, electronic) and to whom 3.2 describe the information required on the containers 3.3 explain how to interpret information on vapor removal targets.

Learning outcome
The learner will: 4. Know how to clean and clear tanks of product
Assessment criteria
The learner can: 4.1 describe the range of available cleaning agents and techniques 4.2 explain how and why to use neutralising agents 4.3 describe when and how to transfer product.

Learning outcome
The learner will: 5. Know how to identify signs of tank damage
Assessment criteria
The learner can: 5.1 describe how to identify signs of tank damage and distress (eg debris, surface corrosion, lining damage, cracking).

Learning outcome
The learner will: 6. Know how to work safely
Assessment criteria
The learner can: 6.1 describe the safety requirements specific to internal working (eg Confined Spaces Regulations) 6.2 describe how to minimise contact during residue transfer 6.3 describe safe lifting and moving techniques.

Learning outcome
The learner will: 7. Know the operational procedures in relation to cleaning and clearing bulk liquid storage tanks
Assessment criteria
The learner can: 7.1 describe disposal requirements and locations 7.2 explain how to work with and within the permit system 7.3 describe how to ensure that the tools and equipment are fit for purpose 7.4 explain how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators) 7.5 explain the implications of statutory (eg HASAWA and COSHH) and organisational requirements 7.6 describe how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules).

Unit 334 How to clean and clear bulk liquid storage tanks within bulk liquid operations

Supporting information

Guidance

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

The prerequisite is that the learner is likely to be an apprentice or experienced operator seeking progression.

Assessment Context

This unit deals with the following:

- preparing for the cleaning of storage tanks
- cleaning and clearing tanks of product.

During this work the individual must take account of the relevant operational requirements and safe working practices **as they apply to them.**

The scope of the work is such that within the limits of the individual's responsibility they must be able to demonstrate that they know and understand:

- how to select, use and care for PPE (eg sight/hearing protection, gloves, footwear, hard hats, respirators)
- the implications of statutory (eg HASAWA and COSHH) and organisational requirements
- how to interpret operational requirements (eg policies, procedures, instructions, codes of practice, standards, schedules)
- the information to communicate (eg written, verbal, electronic) and to whom.

Appendix 1 Relationships to other qualifications

Links to other qualifications

These qualifications have connections to the:

- Level 2 Certificate in Process Engineering Maintenance **(0640-20)**
- Level 2 Diploma in Jetty Operations **(0640-21)**
- Level 2 Diploma in Processing Operations: Hydrocarbons **(0640-23)**
- Level 3 Diploma in Process Engineering Maintenance **(0640-30)**
- Level 3 Diploma in Jetty Operations **(0640-31)**
- Level 3 Diploma in Processing Operations: Hydrocarbons **(0640-33)**
- Level 3 Diploma in Processing Operations: Hydrocarbons (Control room) **(0640-34)**
- Level 3 Diploma in Downstream Control Room Operations **(0640-34)**
- Level 3 Diploma in Downstream Field Operations **(0640-35)**

Appendix 2 Sources of general information

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

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

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

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

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

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

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

- **Walled Garden**: how to register and certificate candidates on line
- **Qualifications and Credit Framework (QCF)**: general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events**: dates and information on the latest Centre events
- **Online assessment**: how to register for GOLA/e-volve assessments.

Useful contacts

UK learners **General qualification information**	**T: +44 (0)844 543 0033** **E: learnersupport@cityandguilds.com**
International learners General qualification information	T: +44 (0)844 543 0033 F: +44 (0)20 7294 2413 E: **intcg@cityandguilds.com**
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Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) E: **singlesubjects@cityandguilds.com**
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: **intops@cityandguilds.com**
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: **walledgarden@cityandguilds.com**
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	T: +44 (0)121 503 8993 E: **business@cityandguilds.com**
Publications Logbooks, Centre documents, Forms, Free literature	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413

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City & Guilds Group

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Land Based Services (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

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