



ProQual Level 5 Award in Understanding Water Production

Qualification Specification

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Introduction

The **Level 5 Award in Understanding Water Production** is aimed at candidates who wish to demonstrate their knowledge and understanding of water production regulatory compliance requirements.

The Regulated Qualifications Framework (RQF) is the single framework for regulated qualifications, the regulatory body for this qualification is the Office of Qualifications and Examinations Regulation (Ofqual). This qualification is accredited onto the RQF.

Qualification Profile

Qualification title	ProQual Level 5 Award in Understanding Water Production
Ofqual qualification number	603/2865/4
Level	Level 5
Total qualification time	140 hours
Credits	14 credits
Guided learning hours	100
Assessment	Pass or fail Assessed and verified by centre staff External quality assurance by ProQual verifiers
Qualification start date	15/1/2018
Qualification end date	

Entry Requirements

There are no formal entry requirements for this qualification. Centres should carry out an **initial assessment** of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Structure

To achieve the qualification candidates must complete ONE Mandatory unit.

Unit Reference Number	Unit Title	Credits	Unit Level	GLH
K/616/8356	Understanding water production	14	5	100

Centre Requirements

Centres must be approved to offer this qualification. If your centre is not approved please complete and submit form **ProQual Additional Qualification Approval Application**.

Staff

Staff delivering this qualification must be appropriately qualified and occupationally competent.

Assessors/Internal Quality Assurance

For each competence-based unit centres must be able to provide at least one assessor and one internal quality assurance verifier who are suitably qualified for the specific occupational area. Assessors and internal quality assurance verifiers for competence-based units or qualifications will normally need to hold appropriate assessor or quality assurance verifier qualifications, such as:

- ProQual Level 3 Certificate in Teaching, Training and Assessing
- Award in Assessing Competence in the Work Environment
- Award in Assessing Vocationally Related Achievement
- Certificate in Assessing Vocational Achievement
- Award in the Internal Quality Assurance of Assessment Processes and Practices
- Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practices

Support for Candidates

Materials produced by centres to support candidates should:

- enable them to track their achievements as they progress through the learning outcomes and assessment criteria;
- provide information on where ProQual's policies and procedures can be viewed;
- provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence

Assessment

Candidates must demonstrate the level of knowledge and/or skills described in the units. Assessment is the process of measuring a candidate's knowledge and understanding against the standards set in the qualification.

Each candidate is required to produce evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence could include:

- observation report by assessor
- assignments/projects/reports
- professional discussion
- witness testimony
- record of oral and written questioning
- Recognition of Prior Learning

Learning outcomes set out what a candidate is expected to know, understand or be able to do. **Assessment criteria** specify the standard a candidate must meet to show the learning outcome has been achieved.

Learning outcomes and assessment criteria for this qualification can be found from page 7 onwards.

To achieve this qualification all candidates must produce evidence which demonstrates their achievement of all of the assessment criteria.

There must be valid, authentic and sufficient for all the assessment criteria. However, one piece of evidence may be used to meet the requirements of more than one learning outcome or assessment criterion.

Simulations are permitted where candidates, during the course of their qualification, are not able to provide evidence from naturally occurring events.

Internal Quality Assurance

An internal quality assurance verifier confirms that assessment decisions made in centres are made by competent and qualified assessors, that they are the result of sound and fair assessment practice and that they are recorded accurately and appropriately.

Adjustments to Assessment

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements. Centres should contact ProQual for further information or queries about the contents of the policy.

Results Enquiries and Appeals

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Certification

Candidates who achieve the requirements for qualifications will be awarded:

- A certificate listing the units achieved, and
- A certificate giving the full qualification title -

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Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the requirements for a qualification. All certificates will be issued to the centre for successful candidates.

Unit certificates

If a candidate does not achieve all of the units required for a qualification, the centre may claim a unit certificate for the candidate which will list all of the units achieved.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement certificates.

Learning Outcomes and Assessment Criteria

Unit K/616/8356

Understanding water production

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
1 Understand the regulatory and legislative framework in which the water industry operates	1.1 List the main legislation which pertains to the water industry and demonstrate an understanding of the key aspects and how they impact the operation of water production
	1.2 Demonstrate an understanding of the role of the key regulators for the water industry
	1.3 Explain the licensing requirements for the provision for the provision of potable water to customers
	1.4 Explain the Water Quality Standards applicable to potable water production
2 Understand the regulatory compliance framework used by water industry regulators	2.1 Explain the regulatory and economic impact of over and under achieving regulatory performance outcomes and the impact on the prioritisation of business activities to maximise a company's regulatory position
	2.2 Demonstrate an understanding of the enforcement powers available to key regulators and their statutory reporting requirements
3 Understand the implication of climate change for the water industry and the remedial measures required to address this	3.1 Critically analyse the nature of climate change and its impact on the water and environmental industries and likely impacts
	3.2 Demonstrate an understanding of the content of relevant standard for adaption to climate change and their potential application within their organization
	3.3 Critically analyse their organisation's capability in carrying out adaption to climate change at a production level
4 Understand best practice for abstraction of raw water	4.1 Describe raw water types
	4.2 Explain catchment management best practice
	4.3 Describe the facilities and best practice involved with the abstraction of raw water
	4.4 Explain best practice for Raw Water abstraction
5 Understand the construction features and monitoring of Statutory reservoirs that support the regulatory requirements of reservoir safety	5.1 Demonstrate an understanding of the Reservoir Safety Act 1975 and subsequent amendments, including the Flood and Water Management Act 2010
	5.2 Explain the Statutory requirements of the Reservoir Safety Act
	5.3 Explain the role of the Reservoir Owner, Supervising Engineer and Inspecting Engineer

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
	5.4 Explain the procedures available to request an inspection be carried out to ensure reservoir safety 5.5 Explain the types of reservoirs, their design and construction features 5.6 Identify the key features of reservoir design 5.7 Explain the appropriate monitoring requirements for each type of reservoir
6 Understand best practice for clarification of water	6.1 Explain the principles and mechanism of coagulation and flocculation and its function in the clarification process of water treatment 6.2 Describe the different types of plant and processes used in clarification and the factors which could influence the choice of process used 6.3 Describe the different types of clarification plants and why they are chosen, the common issues of plant performance and how these can be overcome and optimised
7 Understand best practice for filtration of water	7.1 Explain the principles and mechanisms of the filtration processes 7.2 Describe the different types of filtration plant, and why they are chosen the common issues of plant performance and how these can be overcome and optimised
8 Understand best practice for disinfection of water	8.1 Explain the reasons for disinfection and a range of processes available 8.2 Explain the mechanisms in disinfection for a range of processes 8.3 Describe the variables that influence disinfection performance 8.4 Describe the monitoring and testing of supplies to demonstrate disinfection success 8.5 Explain the causes of disinfection failures and the requirements for compliance reporting
9 Understand best practice for ancillary treatment and waste treatment	9.1 Explain the principles and mechanisms of ancillary and sludge treatment 9.2 Describe the different types of ancillary and sludge treatment plant and why they are chosen, the common issues of plant performance and how these can be overcome and optimised
10 Understand best practice for process control of water treatment	10.1 Explain the principles and mechanisms for process control of water treatment 10.2 Describe the different types of process control mechanisms and why they are chosen, the common issues of mechanism performance and how these can be overcome and optimised

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
11 Understand best practice for chemical storage	11.1 Describe the hazards of chemicals used in the treatment process and the range of personal protection equipment (PPE) which may be used 11.2 Describe the safe working procedures in the organisation for delivery, storing and handling a range of chemicals
12 Understand engineering principles in relation to clean water treatment	12.1 Explain the basic electrical theory and principle and engineering practices to ensure the safe operation and isolation of electrical and mechanical plant 12.2 Explain the requirements and applicability of plant maintenance regimes within the water industry including the role and importance of first line maintenance
13 Understand hydraulic principles in relation to the water production	13.1 Explain the application and importance of hydraulics for water production 13.2 Apply and convert SI units and perform essential arithmetical operations for hydraulic calculations 13.3 Explain fundamental Hydraulic principles including the Continuity Equation, hydraulic forces, Bernoulli energy conservation and energy friction losses 13.4 Explain Pump Curves and System Curves 13.5 Demonstrate the appropriate application of hydraulic principles across a range of water production applications and uses, including a scenario exercise
14 Understand best practice for dealing with failures or problems arising with treatment processes	14.1 Explain how to identify and evaluate process operations outside normal parameters of operation 14.2 Explain necessary actions that may be required to safeguard the health of customers 14.3 Explain the water company's strategy on the evaluation of risk and its impact on operational management
15 Understand the role of effective data management in management of the water production	15.1 Explain what data is required for effective management of water production and how it is used 15.2 Describe and critically evaluate the Smart production technology and innovations which are available or are becoming available to proactively manage production assets, with emphasis on predict and prevention of asset failure
16 Understand the principles of whole life asset management and its application in investment decision making	16.1 Explain the principles of whole life asset management, investment appraisal, and the application of water safety plans and maintenance strategies in the management of production assets 16.2 Describe, evaluate and appraise options for water production investment projects to address risks and deficiencies in the water production asset base

Learning Outcome - The learner will:	Assessment Criterion - The learner can:
17 Understand the requirements for an effective supply chain management within the water industry	17.1 Critically evaluate different supply chain models used in the water industry 17.2 Identify common types of contracts that are in use in the water industry and the structure of a water industry supply chain 17.3 Explain the principles of inventory management and its relationship to the supply chain in relation to risk and resilience management
18 Understand the importance and application of innovation within the Water Sector	18.1 Explain drivers for innovation within the water or environmental industry, to include regulatory, political, environmental, financial, etc 18.2 Describe an innovation model and explain the desired outcomes from the different stages of the process 18.3 Explain how organisational culture can support and promote the innovation process
19 Understand the importance and application of resilience within the Water Sector	19.1 Identify the principles, essential features and objectives of risk and resilience management 19.2 Explain the regulatory framework pertaining to risk and resilience and the needs and expectations of relevant regulators in respect of risk and resilience 19.3 Demonstrate an understanding of emergency planning and business continuity, by identifying risks to a business and steps that can be made to reduce such risks 19.4 Critically analyse the various techniques for gathering data in order to manage risk and resilience

Assessment

There must be valid, authentic and sufficient for all the assessment criteria. However, one piece of evidence may be used to meet the requirements of more than one learning outcome or assessment criterion.



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