GQA PAA/VQ SET LEVEL 5 DIPLOMA IN OPERATIONAL HYDROMETEOROLOGY

Qualification Number

610/0215/X

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PERSONAL COMPETENCE SUMMARY

Name	Company/Centre
Job Title	GQA Registration Number

UNITS OF COMPETENCE				ASSESSOR SIGNATURE Performance and knowledge assessment completed and supplemented with evidence overtime	DATE
MANDATORY UNITS		Level	Credit		
Y/650/0924	Producing flood forecasts based on meteorological data from others	5	38		

RELIABLE EVIDENCE: The forms of evidence available include (mark as appropriate)

Observation in the workplace	☐	Assessment of knowledge	☐
Records of prior experience	☐	Witness statement(s)	☐
Testimonial(s)	☐	Photographic evidence	☐
Work records	☐	External testing	☐

Passport Style Candidate Photo (Mandatory)

COMPETENCE COMPLETION SIGNATURES

By signing here, the Candidate and Assessor confirm that evidence presented is authentic and that the assessments took place in accordance with the relevant assessment strategy. Details of the assessments and evidence must be recorded in the assessment decision record/summaries at theend of each unit.

	Name and Signature	Date
Candidate		
Lead Assessor		
Internal Verifier		
EQA		

Introduction to the Qualification

This qualification sits within the Regulated Qualifications Framework (RQF).

This Qualification Handbook has been developed to ensure that GQA Centres understand the requirements of the qualification. The Handbook contains the following information:

- Qualification Structure
- Assessment Requirements
- Assessment Methods
- Glossary
- Qualification Units

This Qualification Handbook has been developed to provide support in the implementation of the qualification as well as giving information to ensure that the assessment and quality assurance is consistent, robust and reliable within each centre and nationally. The handbook also contains details of the skills and/or knowledge the learner must obtain to achieve the units and qualification.

Qualification Structure

This section of the handbook summarises the content of the qualification and the skills and/or knowledge learners that achieve it can be expected to gain. It also outlines the units required to achieve the qualification and will give the learner an idea of how long the qualification will take to achieve through the Total Qualification Time (TQT) and how much contact time they can expect through the Guided Learning Hours (GLH). It also provides information about possible progression opportunities once the qualification has been achieved.

Assessment Requirements

The assessment requirements for the qualification will cover any specific information about how the qualification may be assessed, such as whether assessors require specific qualifications or occupational competence and whether simulation is permitted in the achievement process.

Assessment Methods

This section summarises the different assessment methods and types of evidence that support assessment; these may be used to demonstrate competence or the achievement of knowledge and understanding.

Qualification Units

The unit overview summarises the content of the unit and the skills and/or knowledge the learner will have gained on achievement of the unit. The units may also contain additional information in the assessment context which will describe the areas to be covered and any appropriate assessment guidance and evidence requirements which will outline additional assessment requirements and should be built into assessment plans and included on assessment records. The unit detail will also confirm whether simulation is permitted for that particular unit.

Qualification Assessment and Support Materials

Centres will be sent the following qualification assessment and support materials:

- Assessment Forms – it is not mandatory to use these forms. Centres may wish to use their own assessment documentation – these should be approved by the External Verifier prior to use.
- Learner Guide
- Qualification Handbook
- Registration Spreadsheet & Certification Claim Forms

Qualification Summary

This qualification will provide recognition of the skills and knowledge of individuals working in operational hydrometeorology and flood forecasting; it covers using meteorological data from others to establish the hydrometeorological situation, forecasting and communicating flood risks using flood forecasting systems and understanding flood risk management.

Total Qualification Time (TQT) and Guided Learning Hours (GLH)

Guided Learning Hours (GLH)

Guided Learning Hours are the time the learner is under the immediate supervision or guidance of a lecturer, supervisor, tutor or other appropriate provider or education or training.

The GLH for this qualification is 184

Total Qualification Time (TQT)

Total Qualification Time is comprised of 2 elements:

1. GLH

plus

2. an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by (but not under the immediate supervision of) a lecturer, supervisor, tutor or other appropriate provider or education or training

The TQT for this qualification is 380

Achieving the Qualification

To achieve the qualification learners must complete 1 Mandatory Unit.

Mandatory Unit

Unit No.	Unit Name	Credit Value
Met 29V2	Producing flood forecasts based on meteorological data from others	38

Progression

This Diploma is part of a suite of qualifications developed from the Meteorology National Occupational Standards at Levels 3 to 6.

Assessors must ensure that, when assessing the skills, knowledge and/or understanding, the evidence produced by learners is:

- Valid – does evidence meet the requirements described in the assessment criteria?
- Authentic – has the learner produced the evidence?
- Current – has the evidence been produced recently and demonstrate current competence?
- Sufficient – is there enough evidence to demonstrate competence?

to enable reliable and consistent judgements to be made about the achievement of all the learning outcomes against the stated assessment criteria.

GQA Recognised Centres must ensure that people involved in the assessment process have the appropriate expertise and are adequately informed and supported to fulfil their responsibilities.

OCCUPATIONAL COMPETENCE OF ASSESSOR AND VERIFIERS

a. Assessors:

- must be competent in the units they are assessing. This is shown through the assessor having achieved the award they are assessing OR providing quality evidence to the external verifier that they are able to make valid judgements of the competence of learners. This could be done through a combination of a) personal interview, b) review of employment histories and/or c) examination of the assessor's judgement during assessments.
- must have a working knowledge of awards and a full understanding of that part of the award for which they have responsibility.
- must hold or be working towards suitable qualifications for assessment, i.e. the accredited Assessor Qualifications. Organisations should consult with GQA regarding approval for appropriate equivalents.

b. Internal verifiers:

- must be either working in the appropriate sector itself OR they must be able to demonstrate they possess practical and up-to-date knowledge of current working practices appropriate to the sector in which they are carrying out verification practices; and
- must be appointed by a GQA recognised centre
- must have a working knowledge of the awards they are internally verifying
- must hold or be working towards suitable qualifications for verification, i.e. the accredited Internal Verification/ Quality Assurance qualifications. Organisations should consult with GQA regarding approval for appropriate equivalents.

ASSESSMENT METHODS AND TYPES OF EVIDENCE

The following section gives information on the different assessment methods/types of evidence that support assessment. The following assessment methods/types of evidence may be used to demonstrate competence or that the learner has achieved the required level of knowledge and understanding.

Observation of Performance

Observation allows the assessor to see learners carrying out their work activities. It will take place primarily in the workplace but can also be undertaken in a training scheme. Natural discussion should take place where possible during observation, allowing the assessor to ask questions relating to what they are observing at the time. Assessors must capture their observations either by a written report and/or other methods (e.g. video, audio recording).

Questioning

This method of assessment can be used to ensure that the learner has knowledge and understanding to support their skills. Questions can be used to check knowledge - these questions can either be verbal during or at the end of an observation, or they can be set in a written format in formal or informal conditions. As some units may focus entirely on learners' knowledge, assessors may encourage a variety of evidence to meet the requirements of the unit – use of verbal and/or written questions, learner statements and professional discussion (see below). Verbal questioning or professional discussion should be captured, either by written notes or audio recording.

Products

Work product evidence may be generated as a result of work activities undertaken by learners, and could include reports, letters, or records of work carried out.

Witness Statement or Testimony

A Witness Statement or Testimony is confirmation by others that the learner carried out an activity or series of activities relevant to the requirements of the unit. It could be written by the learner and signed by the witness to confirm that it did take place, or the witness may write the statement. Alternatively, the assessor could speak to the witness and record the discussion. The statement can then be used as evidence within an assessment.

There may be occasions when an Expert Witness may be required to contribute to the assessment process. GQA's definition of an Expert Witness is 'an experienced employee who works in partnership with the assessor, by observing the learner carrying out their duties and recording their observations in line with the assessment procedures'. It should be noted that while the Expert Witness makes a valued contribution to the assessment process, it is the assessor who makes the assessment decision.

Simulation

Simulations are a source of performance evidence showing how an activity is carried out. Simulations require careful planning to ensure that they reflect as near as possible "real life" conditions and the requirements of the qualification(s). As a result of this the costs to set up a simulation may be considerable. Simulations are likely to be used in the following situations:

- they occur infrequently (e.g. dealing with emergencies)
- they involve unusual working conditions (e.g. working in isolation, outside the workplace)
- the work is hazardous
- it is not cost effective

Any use of simulation should be discussed and agreed with the GQA External Verifier and approved prior to implementation.

Recognition of Prior Learning (RPL)

This is the process whereby credit is given to experienced individuals for their previous achievements. It requires careful mapping of the individual's experience to the unit(s) to ensure that it meets the requirements. This exercise must be referred to the External Verifier to ensure that all the evidence presented is acceptable.

Professional Discussion

A Professional Discussion gives the learner the opportunity to tell their assessor what they are doing and why they are doing it in a particular way. The discussion should be supported by appropriate evidence – an observation report, work product or witness testimony. Professional Discussions should be planned to give the learner the chance to prepare, and should be recorded.

Learner Statements

A Learner Statement is an account of an activity that took place, described by the learner. A detailed statement could demonstrate skill, and also provides evidence of knowledge and understanding. Learner statements should be authenticated by an appropriate person.

Photographs and use of other media

Photographs and use of other media, e.g. video and audio, can provide detail of work activities carried out and questioning. Photographs are more effective when used with supporting statements. Video and audio evidence should be effectively referenced to allow specific activities or questioning to be found easily. It is important to note that if photographs and other media are to be used, the learner and assessor should ensure that permission is gained from all people who may be involved.

Content Of The Qualification

Mandatory Units
Unit Met 29V2 Producing Flood Forecasts Based On Meteorological Data From Others
Level 5
Credit Value 38

Unit Overview

This unit describes the activities and understanding needed to demonstrate that the learner can establish, understand and communicate the risk of flooding in different potential and actual flood situations, having received meteorological guidance from another agency. Having established the flood risk, ensuring that all relevant factors have been considered, the learner then needs to demonstrate the ability to communicate this risk to users of the forecasts.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role.

The learner must generate evidence to show that they can produce flood forecasts over a sustained period. For this unit relevant evidence could include:

- Showing how the learner works during the flood forecasting shift in benign and in hazardous conditions
- Analysed charts identifying features and relevant areas of the hydrological situation
- Giving flood forecasts, with a verbal or written explanation of the consequences for the users
- Examples of how local topography and other factors can have an effect on flood forecasting
- Feedback from users
- Witness testimony from the learner's line manager or colleagues

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.

Assessment Context

When they start work towards this Unit they will be expected to complete or will have already completed a period of hydrology training as well as consolidating their skills during an extensive period of on-the-job training.

The following terms have a specific meaning in this unit:

Non-meteorological factors may include but not be limited to: catchment state, catchment characteristics, local conditions.

Observational information may include but not be limited to: rainfall, water level, flow, tide & surge levels, groundwater.

Weather conditions: benign, hazardous.

A hazardous shift is defined as a situation where a warning has been issued, which is appropriate to the type of forecast produced. It is for the assessor to ensure that the shifts take place under a variety of warnings due to different weather patterns. Hazardous weather condition may include but not be limited to – frontal passage, cumulonimbus and associated warnings during unstable conditions, passage of active trough, cold weather bringing ice, snow and freezing precipitation.

Hydrological situation: catchment wetness, antecedent rainfall, groundwater levels, recent flood history.

Flood mechanisms: river (all scales from large catchment to rapid response catchments) surface water, groundwater, coastal and estuarine.

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Establish the hydrometeorological situation using meteorological data from others	1.1. Establish the hydrological situation using the available technology
	1.2. Interpret the meteorological information provided by the relevant meteorological agency
	1.3. Recognise the indicators and synoptic patterns for significant rainfall and surge events at an early stage at all spatial scales
	1.4. Assess the current hydrological situation
	1.5. Monitor continuously and assess the available information through the shift
	1.6. Modify their analysis of how the event will evolve to take account of emerging patterns
2. Forecast the flood risk using meteorological data from others	2.1. Interpret and incorporate the information provided by the relevant meteorological agency to provide information for potential flood-producing rainfall events over the timeframe of the forecast
	2.2. Interpret and incorporate the information provided by the relevant agencies to provide information for the risk of coastal flooding over the timeframe of the forecast
	2.3. Apply local knowledge to add value to these techniques for inland and coastal flood risk
	2.4. Diagnose how other weather elements may directly or indirectly impact upon their flood forecasts
	2.5. Diagnose how other non-meteorological elements may directly or indirectly impact upon their flood forecasts
	2.6. Establish the degree of uncertainty in the values of their flood forecasts
3. Communicate the flood risk	3.1. Choose the correct communication method to inform the users of their flood forecasts
	3.2. Convey the key aspects of flood forecasts, including any potential consequences for the user where relevant or where uncertainty exists
	3.3. Communicate the flood forecast within the timeframe required by the user or the public
4. Know how to establish the hydrometeorological situation using meteorological data from others	4.1. State what to look for when recognising the risk of extreme rainfall events
	4.2. Describe how observational information is measured and reported in real time
	4.3. Describe how the available observational information is incorporated into the forecast process
	4.4. Explain the principles behind the main flood mechanisms for which forecasts apply
	4.5. Explain the meteorological and hydrological conditions that give rise to the main flood mechanisms
	4.6. Describe the main areas of Research and Development in the flood forecasting field as well as the planned areas of Research and Development

5. Know how to use Flood Forecasting Systems	5.1. State how Flood Forecasting Systems ingest, process and display information
	5.2. Describe how the information from a Flood Forecasting System is used in real time and off line
	5.3. Explain the basis of real-time hydrological and hydraulic models that are available and how they forecast floods
	5.4. Explain the strengths, weaknesses and performance characteristics of real-time hydrological and hydraulic models
6. Know how to produce values for the flood risk	6.1. State what they need to consider when producing coastal forecasts
	6.2. State how to show the accuracy of these coastal forecasts and their lead time
	6.3. Describe the other weather hazards that may directly or indirectly impact flood forecasting
	6.4. Explain the non-meteorological factors that may directly or indirectly impact upon flood forecasting
	6.5. Explain the benefits and limitations of probabilistic flood forecasting and probabilistic rainfall forecasting (for flood forecasting), including decision making under uncertainty
7. Know how the flood forecast will be utilised	7.1. Describe what flood forecasting contingency methods are commonly in use
	7.2. State the duties and responsibilities of a flood forecasting duty officer and a flood warning duty officer during fluvial and coastal flood situations
	7.3. Describe the requirements of users of flood forecasts
	7.4. Explain how decisions will be made by the user based on their recommendations relating to the flooding risk
	7.5. State the appropriate ways to liaise with their flood forecasting users
	7.6. Explain the significance and consequences of major coastal and inland flood events
8. Know the policy and international impacts of flood risk management	8.1. State the rules governing the production of flood risk forecasts and the definitions that are used
	8.2. Explain the principal impacts of climate change on flooding and flood-risk management, including the large scale drivers that influence global water availability and flooding and the limitations of climate change research for flood risk management
	8.3. Describe the current state of flood risk management in the UK and internationally, including responsibilities of various bodies and policy makers
	8.4. Describe international policies in terms of flood forecasting

Assessor Comments

Notes

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