Unit title	Measure System Performance using Flow and Pressure Equipment
SQA code	HC41 04
SCQF level	6
SCQF credit points	7
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History of changes

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Title	Measure System Performance using Flow and Pressure Equipment
Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
1 Determine the nature and scope of an investigation.	1.1 Identify the available **information** regarding system performance. 1.2 Interpret the **information** and determine the requirements of an **investigation**. 1.3 Determine appropriate **investigation** methods. 1.4 Inform relevant people of the **investigation** details.
2 Use data measuring equipment.	2.1 Select appropriate **equipment** in accordance with the **investigation** to be carried out. 2.2 Confirm that the **equipment** is in working order and is safe to use. 2.3 Confirm that the **equipment** is calibrated in accordance with the manufacturer's specification. 2.4 Select an appropriate test point(s) to apply the **equipment**. 2.5 Prepare the test point to ensure safe and hygienic operation. 2.6 Apply the **equipment** correctly and confirm that it is operating properly. 2.7 Take the **relevant action** where they identify: (a) problems with the **equipment** or its use (b) problems with the test point. 2.8 Safely remove the **equipment** on completion of the **investigation** and return it in a suitable condition to its correct storage location.

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
	2.9 Follow safe working and hygiene practices for using data measuring **equipment**, in line with relevant procedures, regulatory and statutory requirements.
3 Collect and evaluate data.	3.1 Identify data collection requirements from specified recording **equipment**. 3.2 Collect the data in accordance with organisational requirements. 3.3 Identify expected results and identify and record abnormal results and **equipment** malfunctions. 3.4 Collate the data accurately. 3.5 Evaluate the data and confirm that it meets the **investigation** needs. 3.6 Determine appropriate recommendations from the data. 3.7 Provide the results and any recommendations to the relevant person, in accordance with organisational requirements.
4 Know and understand how to use flow and pressure equipment to measure system performance.	4.1 Explain the purpose of measuring system performance. 4.2 Describe what constitutes ‘normal’ operating conditions. 4.3 Explain the purposes of **investigations** and how to carry them out. 4.4 List the different sources of **information** regarding system performance and how to use them. 4.5 State how system performance can be measured. 4.6 Describe how to interpret **information** about system performance.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
	4.7 Outline the requirements for informing people about the **investigation**, including: (a) who requires **information** about the **investigation** (b) what **investigation information** must be provided. 4.8 Describe how to use different types of **equipment** for measuring system performance. 4.9 Explain how to select the appropriate **equipment** for the location and **investigation**. 4.10 Outline what is covered by manufacturers' specifications. 4.11 Describe how to select a suitable test point, including (a) what to consider to select a test point (b) the implications of using inappropriate test points. 4.12 Explain the correlation between measurements taken, flow rates and ground levels. 4.13 Describe the interaction of flow and pressure when measured at the same point over a period of time. 4.14 Explain what factors can affect the accuracy of **equipment**, and the importance of accurate results. 4.15 Describe typical and unusual problems with **equipment** and its use and the limits of their responsibility for resolving them. 4.16 Confirm what constitutes a suitable condition for the **equipment**.

Learning Outcomes The learner will:	Assessment Criteria The learner can:
	4.17 State storage requirements for **equipment**. 4.18 Outline the safety and hygiene practices and related regulatory and statutory requirements relating to: (a) the use of tools and **equipment** (b) working in the public highway (c) personal hygiene. 4.19 Explain how to minimise contamination, including: (a) the causes of contamination (b) the dangers posed by contamination (c) how to minimise the risk of contamination. 4.20 Describe the data collection methods for different types of recording **equipment**. 4.21 Explain how to identify abnormal results and record them in line with organisational requirements. 4.22 Outline what constitutes an **equipment** malfunction and the effects of faulty **equipment** being used. 4.23 Give examples of the types of recommendations that would be indicated by different results.

Additional information about the Unit

Unit purpose and aim(s)

This Unit allows learners working on the water distribution network to demonstrate the skills required to test flow and pressure using a variety of equipment, in a variety of situations, including customer premises and access points on the networks. Learners must identify the flow and pressure measurements required and select recording methods appropriate to the situation, informing relevant people of their proposals.

Learners must fit appropriate gauges and recorders at suitable test points on the system, ensure that they are calibrated correctly and confirm that they are operating correctly. They must collect and evaluate the recorded flow and pressure data, confirm that it provides the information required, and identify and record abnormal results. Learners must be able to explain the minimum service standards required, the reasons why such levels may not be met and what actions to take when standards are not met.

Flow and pressure data must be provided in the required format to colleagues or customers as necessary. Safe working and hygiene practices must be followed at all times.

Details of the relationship between the Unit and relevant national occupational standards (if appropriate)

EUSDC08 — Measure system performance using flow and pressure equipment

Details of the relationship between the Unit and other standards or curricula (if appropriate)

N/A

Assessment requirements specified by a sector or regulatory body (if appropriate)

Some terms, used in the Assessment Criteria, cover a range of situations, as follows:

1 Investigations relate to:

(a) pressure on the mains network
(b) flow on the mains network
(c) pressure within customer premises
(d) flow within customer premises.
(e) network performance investigations
(f) future planning investigations.

2 **Information** is generated from:

(a) service Levels
(b) customers
(c) records.

Assessment requirements specified by a sector or regulatory body (if appropriate) (cont)
3 Data measuring **equipment** includes: (a) gauges (b) recorders. (c) flow meters (d) manometers (e) loggers (f) ultra sonic. 4 **Relevant action** taken to resolve problems includes: (a) rectification of problems within the learner's responsibility (b) reporting of problems outside the learner's responsibility. Assessor observation in a realistic working environment (RWE), agreed in advance with the EV, may contribute to the Unit evidence. Networks replicated in the RWE must be pressurised to a level consistent with, and must contain a substance which replicates, the workplace network. The equipment used must be of the same type, and cover the same variety, as that which is available in the learner's workplace.

Assessment (evidence) Requirements
Workplace evidence The majority of the evidence used for this Unit must come from the learner's own work activities, both in their own 'reporting base' and working on the water distribution network. **Knowledge and Understanding** The Knowledge and Understanding requirements for this Unit must be covered in full. The learner may demonstrate considerable knowledge through their workplace performance and during observed assessments, but it is likely that some assessor questioning will be needed to confirm that all knowledge requirements are met. The centre may use oral and/or written questioning to cover the knowledge requirements.
Guidance on Instruments of Assessment
The evidence for this Unit is likely to be generated through a mixture of observation reports, assessor-guided discussions and questioning, and workplace records, reports or documentation.