



Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG318A Monitor and operate flow control, pressure, measuring and regulating devices for gas transmission

Release: 1

UEGNSG318A Monitor and operate flow control, pressure, measuring and regulating devices for gas transmission

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

This Competency Standard Unit covers the monitoring and operation of complex flow control, measuring and regulating devices to monitor and control gas supply in gas distribution systems. The competency standard refers to Inspecting and controlling; Regulation of flow and pressure; Measuring; Recording and reporting; Regulation of flow and regulation devices; Regulation of the system; Equipment; Organisational and statutory requirements.

Application of the Unit

Application of the Unit

3)

This competency standard shall apply to any basic and safe work site where Gas Industry operations occur. It could also apply, where applicable to other workplaces in the electricity supply industry (transmission and distribution and generation), the electrotechnology industry and the water industry, subject to all Occupational Health and Safety and duty of care requirements being met for the workplace.

Licensing/Regulatory Information

License to practice

3.1)

The skills and knowledge described in this unit are not subject to licence regulation other than those directly related to Occupational Health and Safety, gas/electricity/water industry safety and compliance,

License to practice

3.1)

industrial relations, environmental protection, telecommunications, anti discrimination and training. Commonwealth, State/Territory or Local Government legislation and regulations may exist that limits the age of persons who can operate certain equipment.

Pre-Requisites

Prerequisite Unit(s)

2)

Competencies

2.1)

Granting of competency in this unit shall be made only after competency in the following skill outcomes have been confirmed:

To minimise incidents related to safe systems of work, entry into this unit requires at a minimum that an individual has demonstrated or possesses a gas industry or relevant technical engineering discipline competencies of at least AQF level 3. It is intended that an individual will be expected to perform with a large degree of autonomy in decision-making, whilst in an individual environment. This may include immediate response to protect human life, adverse effect on safety, security of supply or the integrity of the assets.

Note: Typically the following disciplines provide direct entry; electrical or instrumentation, fitting and turning or mechanical trade or marine engineering technologist.

Where an individual does not possess or demonstrate the requisite entry requirement, an equivalent bridging program shall be used to ensure equivalence of entry.

To optimise training and assessment effort, competence in this unit may be assessed concurrently with unit:

Employability Skills Information

Refer to the Evidence Guide

Elements and Performance Criteria Pre-Content

5) Elements describe the essential outcomes of a competency standard unit
Performance Criteria describe the required performance needed to demonstrate achievement of the element.
Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for the operation of complex flow control	1.1 Work requirements for monitoring and operating complex flow control, measuring and regulating devices are interpreted from plans, specifications and instructions 1.2 Relevant requirements and established procedures for the work are communicated to all persons 1.3 OHS, environmental and sustainable energy policies and procedures related to the monitoring and operating of complex flow controls are obtained and confirmed for the purposes of the work performed and communicated 1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures 1.5 Risk control measures for identified hazards are prioritised, implemented and monitored against the work schedule 1.6 Relevant work permits are obtained to access, isolate/de-energise systems and perform work according to requirements and established procedures 1.7 Resources including appropriately licensed persons, equipment, tools and personal protective equipment required for investigating billing exceptions and conditions are identified, scheduled and obtained and confirmed in working order

ELEMENT	PERFORMANCE CRITERIA
2 Repair and replace devices and equipment and monitor system performance	1.8 Liaison and communication issues with authorised persons, authorities, clients and land owners are resolved and activities coordinated to carry out work
	1.9 Persons participating in the work, including plant operators and contractors are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures
	2.1 Information on device and equipment performance is collected and reported in accordance with organisational requirements
	2.2 Dealing with customers are consistent with standard operating procedures and the special needs of customers are identified and considered in targeting client service
	2.3 Apply Essential Knowledge and Associated Skills for monitoring and operating complex flow control devices to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
	2.4 Routine inspections of system are scheduled and monitored in accordance with the work schedule and established procedures
	2.5 Hazard warnings and safety signs are recognised and hazards are assessed and OHS risks are reported to the immediate authorised persons for directions according to established procedures
	2.6 Data on system performance and usage is collected, analysed and reported and unplanned events in the monitoring and operation of complex flow control are undertaken with the scope of established procedures
	2.7 Samples are taken in accordance with established procedures and known solutions to a variety of problems are applied using Essential Knowledge and Associated Skills
	2.8 Ongoing checks of quality of the work are

ELEMENT	PERFORMANCE CRITERIA
3 Controlling and adjusting flows and compilation of records and reports	undertaken in accordance with given instructions and established procedures
	3.1 Flow and overflow regulating systems are inspected and adjustments made to meet demand and customer requirements
	3.2 Accidents and injuries are reported in accordance with established procedures where applicable
	3.3 Flows and diversions are determined to facilitate repair or emergency activities in accordance with organisational requirements
	3.4 Process faults and operational conditions of the system are identified, addressed and reported in accordance with organisational requirements
	3.5 Work completion records, reports and documentation are finalised and processed and appropriate persons notified

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

6) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices monitoring and operating complex flow control, measuring and regulating devices for gas pressure control. The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

- 3.2.1 Consulting appropriate persons to coordinate work and persons on a Gas Industry workplace
- 3.2.7 Prepare reports
- 3.2.17 Maintain records
- 3.2.19 Liaise and communicate with relevant parties

REQUIRED SKILLS AND KNOWLEDGE

- 3.8.1 Systems operations flow control
- 4.1.5 Interpreting Gas Industry drawings

Evidence Guide

EVIDENCE GUIDE

8) The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all components parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

8.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry regulatory policy in this regard.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practiced. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required

8.2)

Before the critical aspects of evidence are considered all

to demonstrate competency in this unit

prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines UEG06'. Evidence shall also comprise:

- A representative body of Performance Criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and range
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit to such an extent that the learner's performance outcome is reported in accordance with the preferred approach; namely a percentile graded result, where required by the regulated environment
 - Demonstrate an appropriate level of skills enabling employment
 - Conduct work observing the relevant anti-discrimination legislation, regulations, policies and workplace procedures
 - Demonstrate performance across a representative range of contexts from the prescribed items below.

Range of tools/equipment/materials/procedures/workplaces/other variables		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	At least 3	Interpret technical drawings and symbols Selection of appropriate tools and equipment System knowledge of TP, HP, MP, LP Relevant knowledge of

		AS3885 Part 3
B	All	Auxiliary control systems knowledge and understanding Wide open monitor operation Two stage pressure reduction with monitor override
C	All	RTU control of regulators
D	At least 2	Pressure Controllers, operation, maintenance and understanding Commissioning/Setting Troubleshooting Pressure Boosters minor repairs Knowledge of types/models
E	At least 2	Basic regulator knowledge and understanding Sleeve types Control valves Diaphragm types Hydraulic Plug types
F	All	Valve maintenance and operation. Working knowledge of Ball, Plug, Gate Instrument and Butterfly valves
G	At least 3	Working knowledge of: Diaphragm meters Rotary meters Turbine meters Ultrasonic Orifice plates Coriolis Oil changing
H	At least 3	Operational checks Single run units Dual run units City gates District regulators Field regulators

I	At least 3	Full Maintenance Activities Single run units Dual run units City gates District Regulators Field Regulators
J	At least 3	Pressure alterations Industrial units City gates Regulator Stations Distribution mains
K	At least 3	Flaring and Purging Industrial units City gates Regulator Stations Distribution mains
L	At least 3	Overpressure Protection Systems function and operation. OPSO Internal pressure relief systems Pressure relief valves Slam Shut systems Valve Actuator and control systems
M	All	Paperwork: Risk assessments Time sheets Completing work sheets Notifications and work permits Equipment check lists Meter Bypass forms Service orders Pressure recording charts
N	At least one occasion	Deal with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items

Context of and specific resources for assessment

8.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this Competency Standard Unit.
- Appropriate environmental regulation and work practices.
- Appropriate organisational requirements.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency in monitoring and operating flow control, pressure, measuring and regulating devices for gas transmission.

Assessment of this competency must also be undertaken in either an actual workplace or under a simulated work environment. Assessment must also integrate the Key Competencies .

Method of assessment

8.4) This Competency Standard Unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note: Competent performance with inherent safe working practices is expected in the Industry to which this Competency Standard Unit applies. This requires that the specified Essential Knowledge and Associated Skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and associated skills described in this unit.

Concurrent assessment and relationship with other units

8.5)

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied Competency Standard Units where listed.

UEGNSG102A Carry out work activities in a utilities industry work environment

UEGNSG103A Comply with workplace OHS procedures and practices

UEGNSG104A Comply with environmental policies and procedures

UEGNSG105A Establish the work site

BSBCMN302A Organise personal work priorities and professional development

BSBFLM312A Contribute to team effectiveness

BSBFLM303A Contribute to effective workplace relationships

BSBCMN311A Maintain workplace safety

Or, the following units of competency:

BSBFLM405A Implement operational plans

BSBCMN411A Monitor a safe workplace

Key Competencies 8.6)

Evidence that particular Key Competencies have been achieved within this Competency Standard Unit is in the context of the following Performance Criteria of evidence. See Volume 2, Part 4 for an explanation of Key Competencies and levels of this Training Package.

Key Competencies	Example of Application	Performance Level
How are ideas and information communicated within this competency?	Refer to the following Performance Criteria for examples of application: 1.8; 2.2; 3.5	3
How can information be collected, analysed and organised?	Refer to the following Performance Criteria for examples of application: 1.1	2
How are activities planned and organised?	Refer to the following Performance Criteria for examples of application: 1.4; 1.7	2

How is team work used within this competency?	Refer to the following Performance Criteria for examples of application: 3.1	2
How are mathematical ideas and techniques used?	Refer to the following Performance Criteria for examples of application:	N/A
How are problem solving skills applied?	Refer to the following Performance Criteria for examples of application: 3.3	2
How is use of technology applied?	Refer to the following Performance Criteria for examples of application:	N/A

Skills Enabling Employment

8.7)

Evidence that competency in this unit incorporates skills enabling employment is in the context of the following performance. See Volume 2, Part 5 for definitions and an explanation of skills enabling employment.

Skills for Employment		Example of Application
1	Developing and using skills within a real workplace	Refer to the following Performance Criteria for examples of application: All
2	Learning to learn in the workplace	Refer to the following Performance Criteria for examples of application: 2.6; 2.7
3	Reflecting on the outcome and process of work task	Refer to the following Performance Criteria for examples of application: 3.3

4	Interacting and understanding of the context of the work task	Refer to the following Performance Criteria for examples of application: 1.4; 1.8
5	Planning and organising the meaningful work task	Refer to the following Performance Criteria for examples of application: 1.4; 1.5; 1.7; 1.8
6	Performing the work task in non-routine or contingent situations	Refer to the following Performance Criteria for examples of application: 2.6

Range Statement

RANGE STATEMENT

7) This relates to the competency standard unit as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

This Competency Standard Unit shall/may be demonstrated in relation to the monitoring and operating of complex flow control, measuring and regulating devices for gas pressure control.

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section of this volume and form an integral part of the Range Statement of this unit:

Inspecting and controlling

Regulation of flow and pressure

Measuring

Recording and reporting

Regulation of flow and regulation devices

Regulation of the system

Equipment

Organisational and statutory requirements

Unit Sector(s)

Not Applicable

Literacy and numeracy skills

Literacy and numeracy skills

2.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 3 Writing 3 Numeracy 3

Competency Field

Competency Field

4)

Transmission.