Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG319B Custody transfer metering and gas quality analysis

Release: 1

UEGNSG319B Custody transfer metering and gas quality analysis

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor **1) Scope:**

1.1) Descriptor

This Competency Standard Unit covers the calibration of volumetric measuring devices and gas analysers used in the measurement of gas quality.

The competency standard refers to the inspection, validation, calibration and recommissioning of custody transfer devices and gas quality measuring equipment in accordance with reference standards to meet contractual, organisational or statutory requirements.

Application of the Unit

Application of the Unit **2)**

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)**

The skills and knowledge described in this unit are not subject to licence regulation other than those directly related to Occupational Health and Safety,

License to practice **3)**

gas/electricity/water industry safety and compliance, 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) **4)**

Competencies **4.1)**

Granting of competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed:

Nil

Literacy and numeracy skills **4.2)**

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 4 Writing 4 Numeracy 4

Employability Skills Information

Employability Skills **5)**

This unit contains Employability Skills

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) 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 calibration of CTM or gas quality measuring equipment.	1.1 Work requirements for calibration of measuring devices are interpreted from plans, specifications and instructions
	1.2 Relevant requirements and established procedures for the work are communicated to appropriate persons
	1.3 OHS, environmental and sustainable energy policies and procedures related to the work to be performed are obtained and confirmed 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 equipment, tools, calibration gases and personal protective equipment required to conduct the work are suitable, fit for purpose are obtained and confirmed in working order and any test measurement equipment is NATA calibrated and within calibration tolerances

ELEMENT		PERFORMANCE CRITERIA	
		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	Inspect/Validate/Calibrate CTM or Gas Quality measuring equipment.	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	Essential Knowledge and Associated Skills for the Inspection, Validation, Calibration of CTM's or Gas Quality measuring equipment is applied to ensure completion in an agreed timeframes 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 and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures
		2.6	Equipment is calibrated against appropriate standards using correct calibration devices, equipment, techniques are undertaken within the scope of established procedures
		2.7	Deviations of results are resolved in accordance with established procedures and known solutions to a variety of problems are applied using Essential Knowledge and Associated Skills

ELEMENT	PERFORMANCE CRITERIA	
	2.8	Ongoing checks of quality of the work are undertaken in accordance with given instructions and established procedures
3 Return to operational service of CTM or Gas Quality measuring equipment.	3.1	Equipment is returned to operational service in accordance with established procedures
	3.2	Anti tamper seals are replaced and tagging removed in accordance with established procedures where applicable
	3.3	Work completion records, reports and documentation are finalised and processed and appropriate persons notified

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) 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 in custody transfer metering and gas quality analysis.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

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G 3.1.2 Work independently in a Gas Industry environment

Evidence shall show an understanding of working independently in a Gas Industry environment, indicated by the following:

- understanding of how to work autonomously or under limited/remote supervision.

G 3.2.7 Prepare reports

Evidence shall show an understanding of the preparation of

reports applicable to the commissioning and decommissioning of Gas Industry pipelines (Distribution), indicated by the following:

- Apply procedures and legislative requirements for maintaining appropriate reporting and recording systems
- Complete job records and process information to appropriate/relevant department
- Recorded non-conformances and incidents including customer outages in accordance with procedures and legislative requirements.

G 3.2.17 Maintain records

Evidence shall show an ability to maintain of records for the repair and modification of Gas Industry pipelines (Distribution) systems, indicated by the following:

- Interpret and apply enterprise policies and procedures
- Collate all relevant data
- Identify and complete the relevant records, drawings, documents and forms
- Store records in a secure manner consistent with enterprise policies and procedures

G 3.2.19 Liaise and communicate with relevant parties

Evidence shall show an understanding of liaising and communicating with relevant parties involved in repair or modification of Gas Industry pipelines (Distribution), specifically:

- Interpret and apply enterprise policies and procedures
- Identify key stakeholders
- Identify specialists that can assist in repair/modification work
- Identify responsibilities and reporting requirements of third parties
- Establish communication lines with parties that require notification of repairs/modifications

G 3.8.1 Systems operations flow control

Evidence shall show an understanding of the workings of gas flow and the devices used to control flow control, indicated by the following:

- understanding gas flow control devices.

G 4.1.5 Interpret Gas Industry drawings

Evidence shall show an ability to interpret and understand Gas Industry technical drawings, indicated by the following:

- understanding and interpreting relevant technical drawings including, but not limited to:
  - Process and Instrumentation Diagrams (PID)
  - Facility and pipeline construction and as-built drawings
  - Geographical Information System (GIS) drawings and data
  - Electrical drawings
  - Survey maps
  - Pipeline route maps and alignment sheets

Evidence Guide

EVIDENCE GUIDE

9) 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 **9.1)**

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 to demonstrate competency in this unit

9.2)

Before the critical aspects of evidence are considered all 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 — UEG11'. Evidence shall also comprise:

- A representative body of work performance 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 employability skills
  - Conduct work observing the relevant anti-discrimination legislation, regulations, polices and workplace procedures
- Demonstrate performance across a representative range of contexts from the prescribed items below.

Range of tools/equipment/procedures/workplace		
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 **9.3)**

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 of custody transfer metering and gas quality analysis.

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

Method of assessment **9.4)**

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 **9.5)**

There are no recommended concurrent assessments with this unit.

Range Statement

RANGE STATEMENT

10) 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 be demonstrated in relation to the inspection, validation, calibration, and recommissioning of custody transfer devices and gas quality measuring equipment.

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:

Calibration skills used in the setting, adjustment, calibration validation or verification of instrumentation sensors

Measurement principles

Gas chromatography

Recording and reporting

Equipment

Organisational and statutory requirements

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Transmission.