



**Australian Government**

# **UEGNSG511A Operate gas infrastructure to meet nominated demand**

**Release 1**

# UEGNSG511A Operate gas infrastructure to meet nominated demand

## Modification History

This unit replaces UEGNSG501B Operate gas infrastructure to meet nominated demand

## Unit Descriptor

**Unit Descriptor**                      **1) Scope:**

### **1.1) Descriptor**

This competency standard covers the assessing and responding to anticipated demand. This competency standard also refers to Industry products and services; Authoritative sources; Product information; Stakeholders; Organisational requirements; Interpersonal skills; Nominated person(s); Product and service issues.

## 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, gas/electricity/water industry safety and compliance,

**License to practice**

3)

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 operating 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.

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must have been completed plus all the competencies in one (1) of the identified Pathway Unit Group(s):

Distribution Pathway

Transmission Pathway

Controller Pathway

**Common Group Units**

UEGNSG005A Prepare to work in the Australian gas industry

UEGNSG132A Carry out basic work activities in a gas industry work environment

UEGNSG133A Comply with environmental policies and procedures in the utilities industry

UEGNSG141A Apply Workplace Health and Safety regulations, codes and practices in the gas supply industry

**Distribution Pathway**

UEGNSG216A Commission or decommission gas

**Prerequisite Unit(s) 4)**

distribution pipelines

UEGNSG134A Establish a utilities work site

**Transmission Pathway**

UEGNSG344A Commission or decommission gas transmission pipelines

UEGNSG006A Use a portable gas detectors to locate escape

UEGNSG134A Establish a utilities work site

**Controller Pathway**

UEGNSG507A Remotely monitor and operate gas transmission flow control, pressure measuring and regulating devices

MSS402061A Use SCADA systems in operations

**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 to operate gas infrastructure to meet nominated demand	<p>1.1 Information, requirements and established procedures are detailed, analysed and the extent of the preparation of the work determined for planning and coordination</p> <p>1.2 Work is prioritised and sequenced for the most efficient and effective outcome following consultation with others for completion within acceptable timeframes to a quality standard and in accordance with established procedures</p> <p>1.3 Risk control measures for identified hazards are prioritised, implemented and evaluated against the work schedule</p> <p>1.4 Relevant requirements and established procedures for the work are communicated to all persons and identified for all work sites</p> <p>1.5 Communicate with Gas Industry stakeholders, produce gas schedule based on bid and or nomination information</p> <p>1.6 Operation is carried out in accordance with organisational procedures</p> <p>1.7 OHS, environmental and sustainable energy policies and procedures related to the work are identified to ensure safe systems of work are followed</p> <p>1.8 Relevant stakeholders are provided with possible solutions and options within the scope, acceptable cost and requirements</p>

ELEMENT	PERFORMANCE CRITERIA
	<p>1.9 Liaison and communication issues with relevant stakeholders are resolved and activities coordinated to carry out work</p> <p>1.10 Persons participating in the work, including plant operators and contractors are fully briefed and respective responsibilities coordinated and authorised where applicable in accordance with established procedures</p>
2 Operate gas infrastructure to meet nominated demand	<p>2.1 OHS policies and procedures and safe work practices are followed to eliminate or minimise incidents and hazards</p> <p>2.2 Work is performed and coordinated in accordance with a work schedule and to requirements</p> <p>2.3 Remedial actions are taken to overcome any shortfalls encountered in the work schedule according to requirements and established procedures</p> <p>2.4 Schedule is produced according to the information collected in accordance with established procedures</p> <p>2.5 Any abnormal conditions are recognised and responded to in accordance with organisational procedures</p> <p>2.6 Solutions to problems are identified and actioned using Essential Knowledge and Associated Skills according to requirements</p> <p>2.7 Ongoing checks of quality of the work are undertaken in accordance with requirements and established procedures</p>
3 Complete and review operation of gas infrastructure to meet nominated demand	<p>3.1 Work undertaken is checked against schedule for conformance with requirements, anomalies are reported in accordance with established procedures</p> <p>3.2 Works completion records, reports, documentation and information is confirmed, processed and the appropriate persons notified as</p>

**ELEMENT****PERFORMANCE CRITERIA**

per established procedures

**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 for assessing and responding to anticipated demand.

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

**KS01-G501 Meeting nominated demand****B****G 4.1.2 Understand the effective operation of Gas Industry plant, equipment and materials**

Evidence shall show an understanding of the effective operation of Gas Industry plant, equipment and materials, indicated by the following:

- understand and apply of relevant industry engineering terminology and units
- understanding of pipeline system operating parameters
- demonstrate operational knowledge of systems such as pumps, compressors, regulation, shutdown equipment, measurement systems by on-site or remote operation as applicable.
- understanding of relevant inspection and testing procedures for applicable plant and equipment
- understanding the process of commissioning and decommissioning of relevant equipment such as pipework, vessels and compressors, including on-site and remote operation as applicable.
- Understanding the characteristics of gas flows including compressed and non-compressed operations
- Understanding the characteristics, operation, capabilities and limitations of applicable tools and equipment including prime movers, compression and control

- systems, pipeline facilities and associated equipment
- understanding the operation of gas analysis and measuring equipment

G 4.1.3 Communicate effectively in the Gas Industry at a supervisory level

Evidence shall show an understanding of communication techniques required in supervisory roles in the Gas Industry, indicated by the following:

- communicate effectively with a variety of Gas Industry stakeholders, using strategies for dealing with difficult situations. The communication includes oral, written or electronic communications, : with various stakeholders including:
  - workplace colleagues
  - workplace managers
  - relevant customers and suppliers
  - regulatory bodies
  - property/land owners (including traditional land owners) and tenants
  - emergency response organisations

G 4.1.4 Understand Gas Industry products, processes and characteristics

Evidence shall show a comprehensive understanding of Gas Industry products and characteristics, indicated by the following:

- understand the Gas Industry products and the characteristics and tolerances of the product including:
  - principles of applicable gas laws
    - gas pressure
    - gas temperature
    - compressibility
  - relative density – specific gravity
  - hydrocarbon and water dew points
  - components of applicable natural gases including LPG
  - standard gas conditions
  - combustion
  - venting and purging principles
  - Effects of temperature and pressure on infrastructure

G 4.1.7 Complete Gas Industry reports and documentation



Evidence shall show an understanding and application of completing and interpreting enterprise-specific supervisory level Gas Industry reports including ,but not limited to:

- periodic operational reports
- budget reports and summaries
- regulatory reporting requirements

#### G 4.1.8 Use a personal computer

Evidence shall demonstrate requirements to use personal computer and undertake fundamental tasks, indicated by the following:

- send, answer and manage emails
- access the Internet for research purposes
- write documents using a word processing program
- develop a basic spreadsheet using a spreadsheet program
- apply formatting including cutting and pasting across a variety of computer applications (eg from excel to word)

#### G 4.1.9 Supervise transmission pipeline operations

Evidence shall show an understanding, applicable at a supervisory level, of gas transmission pipelines, indicated by the following:

- pipeline threats, identification and control
- pinpointing pipeline locations
- excavation machinery and their effects used near pipelines
- pipeline specifications
- coatings for corrosion protection
- HB105 Guide to Pipeline Risk Assessment in accordance with AS2885 Part 1 and Part 3
- applicable pipeline legislation, regulatory and advisory standards and codes of practice.

#### G 4.1.16 Demonstrate operational understanding of Gas Industry facilities and infrastructure

Evidence shall show an operational understanding required at a supervisory level for applicable Gas Industry facilities and infrastructure, including, but not limited to:

- regulation and metering facilities
- compression facilities
- gas processing facilities such as coal seam methane plants
- LPG processing facilities
- scraper stations and pigging facilities

- odourisation facilities
- reference to relevant operating policies and procedures

#### G 4.1.17 Demonstrate knowledge of pipeline systems

Evidence shall show an understanding required at a Gas Industry supervisory level of general principles associated with pipelines and other gas infrastructure, indicated by the following:

- identification, control and management of relevant threats against pipeline infrastructure and facilities
- identification of pipeline locations
- application of guidelines for the use of excavation machinery near pipelines and infrastructure and damage
- operational specifications and safe working limitations of pipelines and infrastructure
- principles of cathodic protection and corrosion mitigation
- HB105 Guide to pipeline risk assessment in accordance with AS2885.1, AS2885 Part 3
- applicable pipeline legislation, regulations, advisory standards and codes of practice.

#### G 4.1.19 Understand and apply commercial agreements in a Gas Industry environment

Evidence shall show an understanding of the knowledge of gas industry commercial agreements, indicated by the following:

- understanding the application of applicable commercial agreements and contractual requirements including, but not limited to:
  - Gas Supply Agreements (GSA)
  - Gas Transportation Agreements (GTA)
  - Gas Processing Agreements (GPA)
  - Gas Imbalance Trading procedures
  - Spot market contracts

## 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 and, 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 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, policies and workplace procedures
- Demonstrate performance across a representative range of contexts from the prescribed items below.

<b>Range of tools/equipment/procedures/workplace</b>		
<b>Group No</b>	<b>The minimum number of items on which skill is to be</b>	<b>Item List</b>

	<b>demonstrated</b>	
<b>A</b>	At least 1	<p>Work site context:</p> <ul style="list-style-type: none"> <li>• Gas Industry production, transmission and distribution areas</li> <li>• Location — control centres or other places where communication processes occur</li> </ul>
<b>B</b>	All	<ul style="list-style-type: none"> <li>• Use of relevant computer systems</li> <li>• Work requests from other parties</li> <li>• Relevant procedures for equipment use</li> <li>• Perform work under or without supervision</li> <li>• Work carried out in regular or specified timeframe</li> <li>• Written requests and reports</li> </ul>
<b>C</b>	All	<ul style="list-style-type: none"> <li>• Locate, interpret and apply relevant information</li> <li>• Analyse process functions and problems</li> <li>• Apply relevant customer service policies and procedures</li> <li>• Use appropriate workplace language and communication technologies and techniques</li> <li>• Maintain relevant workplace records</li> <li>• Demonstrate understanding of the essential knowledge and associated skills associated with this competency standard</li> </ul>

		<ul style="list-style-type: none"> <li>Demonstration of each element on several occasions</li> </ul>
<b>D</b>	At least one occasion	Deal with unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in holistic assessment with 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.
- Appropriate work environment, equipment and tools.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency in operating gas infrastructure to meet nominated demand.

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 assessing and responding to anticipated demand.

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:

- Areas to control
- Gas infrastructure
- Records/reports
- Information systems
- Industry products and services
- Authoritative sources
- Product information
- Stakeholders
- Organisational requirements
- Interpersonal skills
- Nominated person(s)
- Product and service issues

### Unit Sector(s)

Not applicable.

### Competency Field

**Competency Field**            **11)**

Control centre.



