Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG115B Manage gas systems projects

Release: 1

UEGNSG115B Manage gas systems projects

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor **1) Scope:**

1.1) Descriptor

This Unit covers the competency required to oversee the management of major construction or maintenance activities in either natural gas or LPG systems. This competency standard refers to Resources; Project activities; Appropriate persons; Legislative and company requirements; Relevant authorities and other stakeholders; Communication strategy; Relevant documentation; Records/reports.

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 limit the age at which a person 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 5 Writing 5 Numeracy 5

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 Prepare project plan	1.1	OHS principles and practices and environmental and sustainable energy procedures which may influence the systems are reviewed and determined
	1.2	Resources are identified, tender documents and projected scope are prepared and tenders called for in accordance with company policy and procedures
	1.3	Performance measures are identified and project management plan is implemented in accordance with established procedures
	1.4	Testing procedures are discussed with appropriate persons in order to ascertain the project brief
	1.5	Testing parameters are established from organisational established procedures on policies and specifications
	1.6	Equipment, tools and personal protective equipment are selected and coordinated based on specified requirements and established procedures
	1.7	Work roles and tasks are allocated according to requirements and individual's competencies
	1.8	Work is prioritised and sequenced for the most effective outcome, completed within an acceptable timeframe to a quality standard and in accordance with established procedures

ELEMENT	PERFORMANCE CRITERIA	
	1.9	Liaison and communication issues with authorised persons, authorities, clients and land owners are resolved and activities coordinated to carry out work
	1.10	Risk control measures are identified, prioritised and evaluated against the work schedule
	1.11	Relevant work permits are secured to coordinate the performance of work according to requirements and established procedures
2 Implement and manage project plan	2.1	Project schedule and project administration plan is developed and communication strategy with contractors, company representatives and technical experts is developed and implemented
	2.2	OHS and sustainable energy principles, functionality and practices to reduce the incidents of accidents and minimise waste are incorporated into the project in accordance with requirements and established procedures
	2.3	Applications for work permits, access permits and licences are prepared and submitted to authorities and stakeholders for approval and resources are acquired and administered in accordance with the project plan
	2.4	Contractors are selected and managed in accordance with the project plan and that project variations are negotiated with all stakeholders and progress reports are prepared and presented with explanations of any over runs
	2.5	Technical advice is given to hazards, assessed risks and control measures so that monitoring can be undertaken and appropriate authorities consulted, where necessary, in accordance with requirements and established procedures
	2.6	Essential Knowledge and Associated Skills are applied to analyse specific data and compare it with compliance specifications to ensure completion of the project within an agreed timeframe according to requirements

ELEMENT	PERFORMANCE CRITERIA	
	2.7	Testing is undertaken according to requirements and established procedures
	2.8	Work teams are arranged to ensure planned goals are met according to established procedures
	2.9	Solutions to non-routine problems are identified and actioned, according to requirements, using acquired Essential Knowledge and Associated Skills
	2.10	Quality of work is monitored against personal performance agreement and established organisational and professional standards
	2.11	Strategic plans are developed incorporating organisation initiatives as per established procedures
3 Finalise and hand over projects	3.1	Remedial work is identified, scheduled and completed
	3.2	Final inspections are undertaken to ensure they comply with all requirements and include all specifications and documentations needed to complete the project
	3.3	Appropriate persons are notified of completion and reports and completion documents are finalised.
	3.4	Reports and completion documents are submitted to relevant persons for approval and where applicable, statutory or regulatory approval
	3.5	Approved copies of documents are issued and records are updated in accordance with 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 managing gas systems projects.

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

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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

G 5.1.1 Supervise Gas Industry operations

Evidence shall show an understanding of the requirements to undertake the supervision of Gas Industry operations, indicated by the following:

- Implementation of risk management and Occupational Health and Safety (OHS) practices and principles including, but not limited to:
  - risk assessment, risk control and risk control measures
  - hierarchy of control
  - personal protective equipment — strengths and weaknesses
  - identifying hazards and their consequences
  - identifying hazards, assessing associated risks and

implementing appropriate control measures
    - developing hazard checklists
    - reporting hazards including hazardous events
- planning theory and study of HAZOPS and HAZANS
- knowledge of applicable legislative requirements and Australian/New Zealand and ISO standards and codes of practice for the Gas Industry
- Implementation of relevant organisational policies and procedures
- identification and implementation of control measures
- establishing emergency management techniques
- principles and guidelines including critical incident analysis.

G 5.1.3 Plan for, respond to and manage emergencies

Evidence shall show an understanding and application of emergency management techniques in a Gas Industry environment, indicated by the following:

- emergency management concepts and principles:
    - auditing and planning
    - systems analysis
    - policies and procedures for non-employees and contractors
    - types of emergencies
    - dealing with an emergency
    - elements of an emergency plan
    - employee assistance programs.
- Develop an emergency management plan which includes:
    - First Aid and welfare
    - recovery and post recovery plans
    - legislative requirements
    - interaction with authorities/emergency services
    - communication with key stakeholders
    - initial response/assessment and make safe

G 5.1.7 Manage Gas Industry maintenance

Evidence shall show an understanding and application of relevant gas industry infrastructure maintenance and practices at a supervisory level indicated by the following:

- planning of scheduled and non-scheduled maintenance of applicable gas infrastructure
- coordination of maintenance activities

- Implement safety and environmental controls during maintenance activities
- Comply with relevant regulations such as building Codes and Australian Standards during the planning and implementation of maintenance activities
- understanding of applicable project management techniques in maintenance planning and implementation
- manage gas industry projects
- understanding of applicable Human Resource requirements in maintenance activities including appropriate training and qualifications of maintenance personnel.
- Understanding and implementation of relevant aspects of organisational Quality Assurance requirements when planning and implementing maintenance activities

G 6.1.1 Understand and utilise concepts and skills for Gas Industry supervisors

Evidence shall show an understanding and interpretation of the concepts and skills required of Gas Industry supervisors to undertake activities, indicated by the following:

- applicable mathematical techniques and principles to enable production of relevant supervisory level calculations, data processing requirements and reports
- engineering principles and operating principles of pipeline systems
- understanding of safe design principles
- appropriate environmental requirements
- correctly read, analyse, interpret and record data
- third-party service location methods
- construction principles and safety
- applicable gas chemistry, properties and characteristics.

G 6.1.2 Understand and utilise information for Gas Industry supervisors

Evidence shall show an understanding of the requirements to undertake supervision/management in a Gas Industry environment, indicated by the following:

- principles of gas flow and gas metering
- organisational standard operating procedures
- site specific safety legislation and safety requirements
  - overview of Occupational Health and Safety including systematic approaches to OHS
  - health and safety stakeholders (union, employers, workers, contractors and managers) hazards

- risk assessment and control relating to areas such as:
  - electrical safety
  - vibration
  - outdoor work
  - stress
  - equipment, tools and plant
  - noise
  - chemicals and substances
  - manual handling
  - confined spaces
- Stakeholder Relations
  - managing contractors, industry awards, and employee entitlements
  - understanding government and business relations
  - employee associations
  - industry associations
  - awards and agreements
  - collective bargaining and individual agreements
  - conciliation, arbitration, mediation and negotiation
  - coordinate the work of others
- adhere to OHS legislation and regulations
  - understanding government and the development of statute and common law
  - principles of Occupational Health and Safety and risk management
  - Occupational Health and Safety legislation and regulations
- observe environmental and legislative requirements
  - understanding government and the development of statute and common law
  - principles of Occupational Health and Safety
  - environmental and other legislative requirements
- apply applicable permit to work system including types of permit limitations
  - understanding the permit to work system
  - identifying the limitations in a permit to work system
- develop and review standard operating procedures
- review and report on completed work
- employ correct waste management procedures
  - appropriate waste management procedures

- organisational requirements for waste management
- consequences of not managing waste effectively

- knowledge of native title issues and legislation
- analyse relevant workplace data eg incident and environmental monitoring to evaluate the effectiveness of the OHS management system.

G 6.1.3 Commission/decommission pipelines and cathodic protection principles for Gas Industry supervisors

Evidence shall show an understanding of commission/decommissioning and cathodic protection principles required of Gas Industry supervisors, indicated by the following:

- commissioning and decommissioning procedures for pipeline and gas industry facilities and infrastructure
- cathodic protection systems
- plan and design commissioning procedures
- plan and design cathodic protection commissioning procedures

G 6.1.4 Communicate effectively

Evidence shall show an understanding and utilisation of technology for communication in a Gas Industry environment, indicated by the following:

- effective communication for Gas Industry managers and supervisors
  - motives for communication
  - communication networks: who communicates with whom
  - verbal and non-verbal communication
  - choosing the medium and the flow of a message
  - blocks to effective communication
- analyse and interpret recorded data, review and report
- use information technology for communication
  - understanding how to use information technology
  - effective use of email, internet and other communication mediums.

G 6.1.6 Plan and carry out project management

Evidence shall show an understanding and application of the requirements to undertake project management in a Gas Industry environment, indicated by the following:

- project management and costing

    - project planning processes
    - determining project costing
    - planning for events and milestones
    - determining inputs
    - producing outputs to a plan
- planning theory and its processes
    - the importance of planning
    - the planning process
    - organisational goals and objectives
    - strategic planning
    - operational planning
    - forecasting
- prioritise techniques
    - organising/prioritise work flows
    - time management
    - stress management
- managing persons and resources including consultants
    - understanding people
    - understanding behaviour
    - perceiving the causes of behaviour
    - defining leadership
- manage meetings
    - understanding organisational communication
    - formal and informal organisational communication
    - managing meetings and recording minutes
    - drafting minutes
- prepare reports
    - planning the writing process
    - developing the scope and outline of a document/report
    - drafting documents/reports utilising a plan and outline
    - finalising documents/reports
- facilitate contracts and employment
    - parliament, government and the law
    - statute law
    - common law
    - contracts and contract law
    - employment law
- understanding of sound business principles and

performance measures
    - understanding organisational behaviour
    - business fundamentals
    - establishing the principles of performance management
    - establishing performance measures
- understanding of competition policy, budgets and product pricing and tariffs
    - understanding of government business relations in the Gas Industry
    - how tariffs are determined
    - working within legislative guidelines in tariffs and pricing.

G 6.1.7 Understand chemical and physical behaviours of gas

Evidence shall show an understanding of the chemical and physical behaviour of gases, and their effects in a gas system indicated by the following:

- chemical and physical behaviours of natural and liquefied petroleum gas
    - understanding of basic chemistry and physics of gases
    - the chemical makeup and properties of natural gas and LPG
    - dangers of working with natural gas and LPG and how to manage natural gas and LPG
- transportation of LPG and natural gas
    - understanding of issues associated with transporting of natural gas and LPG
- LPG supply logistics
    - correct filling procedures for LPG
    - identifying abnormal cylinder conditions
    - correct storage of LPG.

G 6.1.8 Managing environmental and cultural sensitive issues

Evidence shall show an understanding and implementation of the effective management of environmental and culturally sensitive issues in a Gas Industry environment, indicated by the following:

- understanding applicable environmental legislative compliance and regulation
    - understanding government and laws
    - penalties
    - acting in compliance with laws

- understanding of cultural and community standards and their sensitivities
  - communities and their interaction with government and business in Australia
  - cultural issues in Australia
  - using ethical behaviour in approaching cultural issues
  - anti discrimination legislation in Australia
  - native title issues in Australia
- understanding the impacts of gas installations and infrastructure on the environment and its impacts to native title
  - government and business environmental obligations
  - Australian environmental legislation and its affect on industry
  - the impact of construction of assets to the Australian environment
  - native title considerations for Gas Industry asset owners
- managing sensitive negotiations and communicating with a wide variety of stakeholders
  - understanding stakeholder politics in Australia
  - negotiation and bargaining
  - conciliation and arbitration
  - understanding of sensitive issues and the implications for negotiation.

Evidence Guide

EVIDENCE GUIDE

9) The Evidence Guide forms an integral part of this 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 practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included 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 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 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 2	Resources: Relevant persons Materials, tools and equipment Personal protective equipment and clothing company standard operating procedures Equipment manuals, training resources.
B	At least 3	Project activities: Major construction and maintenance activities in

		the LPG or natural gas sector, Transmission and distribution pipelines LPG storage facilities greater than 50kL Underground storage Tankers and ships Control systems Custody transfer stations Odourising plant Corrosion control Interconnecting systems.
C	At least 2	Appropriate persons: Organisation employees Maintenance persons Appropriately experienced and qualified persons Site security persons Contractors and their employees Inspectors and regulatory authority representatives.
D	All	Legislative and company requirements: Occupational Health & Safety legislation Relevant Government Acts, regulations and codes of practice Australian Standards and Environmental legislative requirements Company Standard Operating Procedures and authorisation requirements and technical standards requirements

E	At least 2	Relevant authorities and other stakeholders: Authorities Local councils Emergency services Road and rail transport authorities Government departments Land owners/Traditional land owners Contractors and other organisational persons
F	All	Communication strategy: Verbal directions Relevant documentation Project records/reports Electronic communications, internet communication.
G	At least 4	Relevant documentation: Specifications Drawings/plans; 'as-constructed' drawings/plans Manufacturer's specifications Work permits Company standard operation and safety procedures Company management plans and policies Hot work permits Company forms and files OHS, laws and codes of practice Relevant Government

		Acts, regulations and codes of practice Environmental legislative requirements Quality assurance; expenditure reports and budgets
H	At least 2	Records/reports: Relevant documentation Routine inspections (daily readings, monthly checks) Scheduled maintenance activities Mandatory or statutory inspections Hazard and incident reports
I	All	Interpreting Gas Industry drawings Understanding emergency management Concepts and skills for Gas Industry supervisors Understanding commission/decommission pipelines and cathodic protection principles for Gas Industry supervisors Communication for Gas Industry supervisors Understanding of project management techniques Understanding of chemical and physical behaviours of gas Managing environmental and cultural sensitive issues
J	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 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 of managing gas systems projects.

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 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 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, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied Units where listed.

UEGNSG113B Manage a utilities industry OHS management system

UEGNSG116B Manage gas system physical resources

UEGNSG120B Manage gas system environmental compliance

Or, with the following units of competency if delivered in the Advanced Diploma qualification:

UEGNSG116B Manage physical resources

UEGNSG117B Plan and implement the data acquisition and metering requirements of a gas system

UEGNSG118B Select and commission equipment to meet pressure and temperature control specifications

UEGNSG119B Manage workplace risk

UEGNSG120B Manage gas system environmental compliance

UEGNSG121B Prepare and design specifications for a gas system

UEGNSG122B Manage a customer service gas business unit

UEGNSG123B Manage financial resources

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 Unit shall be demonstrated in relation to managing gas systems projects.

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:

Resources

Project activities

Appropriate persons (6)

Legislative and company requirements:

Relevant authorities and other stakeholders

Communication strategy

Relevant documentation (6)

Records/reports (6)

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Cross discipline.