



Australian Government

**UEGNSG619A Perform scheduled
maintenance on gas processing or storage
facilities and equipment**

Release 1

UEGNSG619A Perform scheduled maintenance on gas processing or storage facilities and equipment

Modification History

This unit replaces UEGNSG608B Perform minor maintenance on gas processing/storage facilities and equipment

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers carrying out scheduled maintenance and the repair and replacement of parts on liquefied petroleum gas processing or storage facilities and equipment. This includes pressure vessels, valves and fittings; transfer equipment, pumps, compressors, transfer hoses, pipework and seals.

It encompasses following procedures to correctly and safely carry out the work using appropriate materials, tools and equipment,

Application of the Unit

Application of the Unit 2)

This competency standard shall apply to work sites where liquefied petroleum gas is processed and stored, subject to all Workplace Health and Safety (WHS)/Occupational Health and Safety (OHS) and duty of care requirements being met for the workplace.

This unit is intended as an entry level AQF 3 competency for new entrants in the gas industry. It is suitable for employment-based programs under an approved contract of training.

Licensing/Regulatory Information

License to practice 3)

During Training:

Competency development activities are subject to regulations directly related to licensing, occupational health and safety and where applicable contracts of training such as apprenticeships.

In the workplace:

The application of the skills and knowledge described in this unit require a license to practice in the workplace where work is carried out on electrical equipment or installations which are designed to operate at voltages greater than 50 V a.c. or 120 V d.c.

The skills and knowledge described in this unit are also subject to licence regulation directly related to Workplace/Occupational Health and Safety, gas/electricity/water industry safety and compliance, industrial relations, environmental protection, telecommunications, anti- discrimination and training.

Note:

Other conditions may apply under State and Territory legislative and regulatory requirements, for example:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control, lifting equipment.

Permits may also be required for some work environments such as hazardous areas, confined spaces, working aloft, near live electrical devices, site rehabilitation.

2. Compliance may be required in various jurisdictions relating to currency in First Aid, hazardous areas, confined space, lifting and risk safety measures

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:

Relevant Trade qualification, for example

- Certificate III in Plumbing – Gas Fitter
- Certificate III in Mechanical Fitter

Plus

| | |
|------------|---|
| UEGNSG005A | Prepare to work in the Australian gas industry |
| UEGNSG132A | Carry out basic work activities in a gas industry work environment |
| UEGNSG140A | Apply environmental policies and procedures in the utilities industry |
| UEGNSG134A | Establish a utilities infrastructure work site |
| UEGNSG006A | Use portable gas detector |

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 3 Writing 3 Numeracy 3

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 and plan for maintenance and repair activities | 1.1 All necessary and appropriate facilities, tools, test and measurement instruments, materials and components to allow the completion of the work are selected against the work schedule(s), including drawings, plans, requirements and established procedures |
| | 1.2 Relevant requirements and established procedures for the work are communicated to all persons and identified for all work sites |
| | 1.3 WHS/OHS, environmental and sustainable energy policies and procedures related to performing minor maintenance on gas processing and storage facilities and equipment are obtained and confirmed |
| | 1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with |

ELEMENT

PERFORMANCE CRITERIA

- established procedures
- 1.5 Risk control measures for identified hazards are prioritised, implemented and monitored against the work schedule
 - 1.6 The facilities and equipment is made safe by ensuring it is safely isolated, depressurised, purged, tagged and locked out before allowing any repair or maintenance work to be undertaken and the relevant work permits are obtained to access and perform work according to requirements and established procedures
 - 1.7 Resources including appropriately licensed persons, equipment, tools and personal protective equipment required for the job are identified, scheduled and obtained and confirmed in working order
 - 1.8 Relevant persons at worksite are confirmed to be current in First Aid and other related work procedures according to requirements
 - 1.9 Liaison and communication with authorised persons, authorities, clients and land owners is completed so that work can be carried out where necessary
 - 1.10 Site is prepared according to the work schedule and to minimise risk and damage to property, commerce and individuals in accordance with established procedures
 - 1.11 Persons participating in the work, including plant operators and contractors are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures
 - 1.12 Fault-finding and troubleshooting techniques are applied to operational systems in order to identify any repairs or maintenance which may need to be undertaken
 - 1.13 Road signs, barriers and warning devices are positioned in accordance with requirements

ELEMENT

PERFORMANCE CRITERIA

including traffic management plans

2 Perform scheduled maintenance and repairs to gas processing/storage facilities

- 2.1 WHS/OHS policies and procedures and safe work practices are followed to eliminate or minimise incidents and hazards
- 2.2 Lifting, climbing, working in confined spaces or aloft, and use of power tools, techniques and practices are safely followed and currency according to requirements confirmed
- 2.3 Required Skills and Knowledge for the performing of minor maintenance on gas processing and storage facilities and equipment is applied to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
- 2.4 Adjustments to calibration and test equipment and devices are made to ensure equipment and devices operate within specific ranges and to maintain correct flow parameters to ensure gas availability
- 2.5 Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks are reported to the immediate authorised persons for directions according to established procedures
- 2.6 Unplanned events in performing minor maintenance on gas processing/storage facilities and equipment are undertaken with the scope of established procedures
- 2.7 Parts are repaired or replaced and known solutions to a variety of problems are applied using Essential Knowledge and Associated Skills
- 2.8 Maintenance is performed and ongoing checks of quality of the work are undertaken in accordance with given instructions and established procedures

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3 Complete work and relevant documentation | <p>3.1 Maintenance results are documented and work undertaken is checked against work schedules for conformance with requirements and anomalies reported in accordance with established procedures</p> <p>3.2 Accidents and injuries are reported in accordance with requirements and established procedures where applicable</p> <p>3.3 Work site is rehabilitated, cleaned up and made safe in accordance with given instructions and established procedures</p> <p>3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures</p> <p>3.5 Relevant work permit(s) are signed off and equipment is returned to service in accordance with requirements</p> <p>3.6 Work completion records, reports and information are finalised and processed and appropriate persons notified</p> |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) *This describes the skills and knowledge and their level, required for this unit.*

Evidence shall show that knowledge has been acquired of safe working practices for to performing scheduled maintenance and the repair and replacement of parts on liquefied petroleum gas processing or storage facilities and equipment.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies. The extent of the required skills and knowledge is provided below. It forms an integral part of this unit.

KS01-G619A LPG processing or storage facility and equipment maintenance

Evidence shall show an understanding of maintaining and repairing LPG processing or/storage facilities and equipment in accordance with relevant legislation, codes, regulations and established procedures to an extent indicated by the following aspects:

T1. Relevant Australian Standards, guidelines and codes of practice

T2. Relevant WHS/OHS policies and procedures.

- Safety signs including workplace hazards and warnings

T3. LPG storage/pressure vessels

- Types, construction, size, valves, labelling
- Testing and inspection procedures

T4. LPG bulk transfer

- Requirements, applications, methods, procedures
- Equipment/tools
 - Types, selection, manufacturers specifications/instructions, testing, set up, adjusting
 - Compressors, pumps
 - Pipes and hoses

T5. LPG processing

- Requirements, applications, methods, procedures
- Mix/blend properties and specifications
- Equipment/tools
 - Types, selection, manufacturers specifications/instructions, testing, set up
 - Analytical judgements for appropriate adjustments to plant and equipment
 - Variations and irregularities identification

REQUIRED SKILLS AND KNOWLEDGE

- Gas analysis equipment
- Safety
- Gas alarm and communication equipment
- Ignition prevention/control
- Leak testing requirements, types, procedures, required equipment/tools

T6. Personal Protection Equipment

- Types, application, checking, maintenance and storage

T7. Hazard identification, risk assessment and control

- Work Permits, JHA's, JSA's, JSEA's, SWM's, etc.
- Use of spill kits and PPE

T8. Manual handling

- Characteristics, types, techniques

T9. Accidents and emergency

- Types: fire, gas leak
- Emergency response equipment and procedures
 - breathing apparatus
 - gas detectors/oxygen monitoring devices
 - compliance requirements
- Reporting

T10. Scheduled maintenance

T11. Fault identification

T12. Repair and replacement of components and parts

T13. Shut-down procedures

- Manual
- Emergency

T14. Organisation's policies, quality requirements, specifications, forms and reports for work activities

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 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 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 8.2)

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.
 - Maintaining and repairing LPG processing or/storage facilities and equipment in accordance with relevant legislation, codes, regulations and established procedures as described in 9.) Range Statement and including

| Range of tools/equipment/procedures/work place | | |
|---|---|--|
| Group | The minimum number of items on which skill is to be demonstrated | Item List |
| A. Equipme | At least 7 | <ul style="list-style-type: none"> • Pressure vessel • Vapourisers |

| | | |
|---------------------------------|------------|---|
| nt | | <ul style="list-style-type: none"> • Earth connections • Relief valves • System(s) isolation • Emergency shut-down valving (e.g. ISC valves) • Manual shut-down valving • Pipe work • Vessel footings • Regulators • Hoses and couplings • Pumps • Compressors |
| B. Irregularities | At least 3 | <ul style="list-style-type: none"> • Incorrect flow rates • Corrosion • Impact damage • Point deterioration • Leakage • Non-operability of shutdown systems • Equipment out of calibration |
| C. Parts to be replaced: | At least 6 | <ul style="list-style-type: none"> • Excess flow valves • Relief valves • Pressure regulators/springs • Pump seals/compressor seals • Pressure gauges • Bypass valves • Meters • Solenoids • Valves • Break away couplings • Meter heads • Transfer hoses |
| D. Types of adjustments | At least 1 | <ul style="list-style-type: none"> • Downstream pressure adjustment • Storage pressure adjustment (vapouriser system only) • Bypass pressure |

| | | |
|----------------------------|-----------------------|---|
| | | adjustment for pumps |
| E. Documentation | All | <ul style="list-style-type: none"> • WHS/OHS, environmental and associated legislative requirement • Work orders • Manufacturer's specifications • Work permits |
| F. Unplanned events | At least one occasion | Deal with an unplanned event by drawing on required skills and knowledge 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:

- WHS/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.

These should be part of the formal learning/assessment environment.

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

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to locating, proving and protecting utility assets.

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 required Skills and Knowledge 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 required skills and knowledge and associated skills described in this unit.

Concurrent assessment and relationship with other units

8.5)

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|------------|--|
| UEGNSG132A | Carry out basic work activities in a utilities industry work environment |
| UEGNSG134A | Establish a utilities infrastructure work site |
| BSBFLM312B | Contribute to team effectiveness |
| BSBFLM303C | Contribute to effective workplace relationships |

Range Statement

RANGE STATEMENT

9) 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 carrying out scheduled maintenance and the repair and replacement of parts on gas processing or storage facilities and 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:

- Pressure vessels and fittings
- Types of variations or irregularities
- Appropriate parts
- Types of adjustments
- Documents
- Documentation

Unit Sector(s)

Not applicable.

Competency Field

Competency Field 11)
LPG.