



Australian Government

UEGNSG229A Prepare simple drawings of as laid gas mains and services

Release 1

UEGNSG229A Prepare simple drawings of as laid gas mains and services

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor **1) Scope:**

1.1) Descriptor

This unit covers producing simple drawings for as laid new and altered gas installations, mains and services in accordance with relevant standards, abbreviations and symbols.

This unit does not include complex drafting skills.

Application of the Unit

Application of the Unit **2)**

This competency standard shall apply to Gas Industry work sites where drawings of newly constructed or altered pipework need to be recorded for future locating, 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 AQF 3 competency for new and existing workers 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

License to practice**3)**

regulations directly related to licensing, workplace health and safety/occupational health and safety and where applicable contracts of training such as apprenticeships.

In the workplace:

The skills and knowledge described in this unit are not subject to licence regulation other than those directly related to Workplace Health and Safety/Occupational Health and Safety, 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 those who can operate certain equipment. Other conditions may apply to this competency under State and Territory legislative and regulatory requirements.

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:

All competencies in the Common Unit Group must be have been completed plus all the competencies in one (1) of the identified Pathway Unit Group(s):

Common Unit Group

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

Prerequisite Unit(s) 4)

site

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

Plastic Main Services Pathway

UEGNSG212B Construct, lay and connect gas distribution service pipelines to a plastic mains

Steel Main Services Pathway

UEGNSG213B Construct, lay and connect gas distribution service pipelines to metal mains

Polyethylene Mains Pathway

UEGNSG220A Construct and lay Polyethylene gas distribution mains

Nylon or PVC Mains Pathway

UEGNSG222A Construct and lay nylon or PVC gas distribution mains

Steel Mains Pathway

UEGNSG223A Construct and lay steel gas distribution mains

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 Plan to prepare simple drawings of as laid gas mains and services	1.1 WHS/OHS and environmental measures for the site are identified, obtained and understood.
	1.2 Types of drawings required and key features, symbols and abbreviations for each type of plan and drawing used in the gas industry are identified in accordance with the scope and standard of the work being undertaken
	1.3 The need and requirements for the drawing are determined from the work instructions and confirmed with relevant persons.
	1.4 Hazards are identified, WHS/OHS risks assessed and control measures are prioritised, implemented and monitored according to established procedures including keeping emergency exits clear.

ELEMENT**PERFORMANCE CRITERIA**

- 1.5 Client issues are clarified and resolved in relation to the drawing requirements in accordance with established procedures.
- 1.6 Equipment, tools, materials, drawings and personal protective equipment needed for the inspection and measurement and for producing drawings are identified, obtained and checked for correct operation and safety.
- 1.7 Workplace preparation, safety plan and the work schedule are confirmed in accordance with established procedures
- 2 Prepare simple drawings of as laid gas mains and services**
- 2.1 WHS/OHS and control measures, schedule of work and standard operating procedures for carrying out the work are followed
- 2.2 Appropriate materials, tools, equipment and measuring devices are selected and used correctly and safely.
- 2.3 Inspection of relevant site is carried out as required and factors are identified that may impact on technical drawing, such as orientation, altering landscapes, building structures or temporary land marks
- 2.4 Starting point and determine cross reference points are established and measurements from the starting point, distances and off sets are taken, and recorded.
- 2.5 The as laid pipework is drawn to scale on graph paper using standard drawing conventions and incorporating relevant codes and standards.
- 2.6 All fittings that effect the off – set or depth of the pipework such as elbows, tees are indicated on the drawing
- 2.7 Additional fittings that need to be recorded in line with drawing specifications such as in – line valves, tapping tees are indicated on the drawing
- 2.8 All dimensions (off –sets, distances &

ELEMENT**PERFORMANCE CRITERIA**

- directions), pipe diameter, symbols and abbreviations are provided on the drawing in accordance in the specifications
- 2.9 Standard drawing conventions are used to neatly correct original job drawing to show final 'as-laid' arrangement.
- 2.10 Routine quality checks are carried out in accordance with work instructions including testing of pipework.
- 3 Complete work and relevant documentation**
- 3.1 WHS/OHS risk control work completion measures and procedures are followed
- 3.2 Additional documentation is completed; district plan number, Network area, Street name, pressure ratings, type of pipe, size of pipe, date laid and additional comments
- 3.3 Drawings are signed off/closed according to established procedures
- 3.4 Tools, equipment and any surplus resources and materials are cleaned, checked and securely stored.
- 3.5 Appropriate persons are notified of work completion according to established procedures
- 3.6 All drawings and forms are completed and submitted to appropriate persons in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) *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 preparing simple drawings for as laid gas mains and services.

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-G229A Gas Mains & Services as Laid Drawings

Evidence shall show an understanding of preparing simple drawings for as laid gas mains and services in accordance with relevant legislation, code, regulations and procedures. to an extent indicated by the following aspects:

T1. Relevant legislation, Australian Standards, codes, regulations and procedure requirements

T2. Different gas related drawings:

- District Plans
- Industrial drawings
- Easement drawings
- Gas mains detail plans
- Gas Pipeline route maps and alignment sheets

T3. Drawing conventions and features:

- Types of gas pipe work, fittings and gas pressure ranges
- Relevant symbols and abbreviations,
- Direction
- Scale
- Key
- Contours
- Notations

T4. Key information on site plans:

- Gas pressure colour coding
- Plans overlays
- Tie in points
- End of mains
- Change of direction
- Pipe sizing
- Distances
- Method used to lay pipe (Open cut / boring / insertion etc.)

REQUIRED SKILLS AND KNOWLEDGE

T5. Measuring devices:

- Measuring device to actually record off sets:
 - Measuring Wheel
 - Measuring tapes

T6. As laid technical drawings for gas pipework:

- Direction
- Off sets
- Covers
- Pipe size
- Pipe material
- Additional fittings (Valves / Syphons / Test Points / Pits / Kiosk)
- Bends
- Tie in points

T7. Drawing equipment

- Pencils
- Graph paper
- Ruler
- Erasers
- Markers
- Pens
- Tape.

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 8.2)
of evidence
required to
demonstrate
competency in
this unit**

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 required knowledge and 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.
- Prepare simple drawings for as laid gas mains and services as described as described in 9.) Range Statement and including:

Range of tools/equipment/procedures/workplaces		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A. Safety	All	<ul style="list-style-type: none"> • Identify risks associated with measuring newly laid or altered pipe work • Put in place control measures to prevent incidents

B. Drawing interpretation	All	<ul style="list-style-type: none"> • Identify relevant Gas Drawings <ul style="list-style-type: none"> • District Plans • Mains Detail Plans • Industrial services Plans • Gas Easement Drawings • Transmission Pipeline Plans • Identify relevant Dial before You dig Plans <ul style="list-style-type: none"> • Telecommunication s plans • Power Plans • Water Plans • Drain Plans • Interpret symbols and abbreviations • Use the legend to determine specifications • Identify the various gas pressures • Identify the coding for the different pressures • Identify the various pipe materials
C. Drawing requirements	All	<ul style="list-style-type: none"> • Drawing to represent: <ul style="list-style-type: none"> • scale • perspective • dimension • volume • Complete all details <ul style="list-style-type: none"> • pipe size • pressure range • location • diameter • material
D. Unplanned	All	Dealing with unplanned events by drawing on required skills and

events		knowledge, procedures/ protocols to provide appropriate solutions incorporated in the holistic assessment with the above listed items, for example encroachment and/or contact with assets
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Context of and specific resources for assessment 8.3)

This unit contains Employability Skills

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 checking and reporting on station conditions.

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 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 Knowledge and 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 required knowledge and 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.

UEGNSG1 32A Carry out basic work activities in a utilities industry work environment

UEGNSG1 34A Establish a utilities infrastructure work site

UEGNSG2 12B Construct, lay and connect gas distribution service pipelines to a plastic mains

UEGNSG2 13B Construct, lay and connect gas distribution service pipelines to metal mains

UEGNSG2 20A Construct and lay Polyethylene gas distribution mains

UEGNSG2 22A Construct and lay nylon or PVC gas distribution mains

UEGNSG2 23A Construct and lay steel gas distribution mains

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 preparing simple as laid sketches and drawings for gas mains and services.

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:

- Tools and equipment
- Maps and drawing
- Established procedures
- PPE and First Aid equipment
- Traffic control

Unit Sector(s)

Gas Supply Industry

Competency Field

Distribution