



Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG202B Construct and lay distribution pipelines and services

Release: 1

UEGNSG202B Construct and lay distribution pipelines and services

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers the construction and laying of distribution pipelines. The competency standard unit also covers connecting and disconnecting services in a utilities industry workplace, handling, transporting and connecting meters and conducting appliance relights. This competency standard refers to the relevant services; appropriate persons; the relevant materials required to lay distribution pipelines; tools and equipment; safe working procedures and the relevant legislative 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

License to practice**3)**

subject to licence regulation other than those directly related to 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.

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 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 for the laying of a distribution pipeline and the connecting and disconnecting services	1.1 Plans, specifications and work instructions are received and confirmed 1.2 Alignment of main and services and other relevant requirements are defined and established procedures are followed and the work to be performed is discussed with all persons to establish and confirm the work schedule 1.3 OHS, environmental and sustainable energy policies and procedures to be followed for the work to be performed are received and confirmed 1.4 Suggestions to assist with the laying of distribution pipelines and services work are made to others involved in the work 1.5 Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures 1.6 Scope of responsibility under the relevant work permit is received and confirmed according to requirements and established procedures with relevant persons

ELEMENT	PERFORMANCE CRITERIA
1.7	Resources and materials including, appropriately qualified persons, equipment, tools and personal protective equipment required for the job are obtained and in working order according to established procedures
1.8	Relevant responsibilities associated with First Aid and other related work safety procedures at the worksite are confirmed in accordance with requirements and established procedures to ensure safety measures are followed in the event of an incident
1.9	Client issues are referred to appropriate persons in accordance with industry and community standards
1.10	Site is prepared according to given instructions and the work schedule to ensure a quality outcome and to minimise risk and damage to property, commerce and individuals in accordance with established procedures
1.11	Road signs, barriers and warning devices are positioned in accordance with given instructions and requirements including traffic management plans
2 Carry out the construction of a distribution pipeline and connecting and disconnecting services	2.1
	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, excavations, trenches or aloft, and use of power tools, techniques and practices are safely followed in accordance with given instructions and according to requirements confirmed to minimise OHS risks
	2.3
	Operational knowledge for carrying out construction work is confirmed to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements and established

ELEMENT	PERFORMANCE CRITERIA
	procedures
	2.4 Construction work is performed in accordance with given instructions and established procedures
	2.5 Hazard warnings and safety signs are recognised and hazards are assessed and OHS risks are reported to the authorised persons for directions according to established procedures
	2.6 Non-routine events are referred to the authorised persons for directions according to established procedures
	2.7 Problems associated with the construction of a distribution pipeline and services are dealt with using acquired known solutions and skills related to routine procedures to ensure work instructions and established procedures are met
	2.8 Services are installed, tested and commissioned in accordance with procedures
	2.9 Services are disconnected and terminated temporarily or permanently in accordance with procedures
	2.10 Appliances are lit in accordance with manufacturer's instructions
	2.11 Ongoing checks of work quality are undertaken in accordance with given instructions and established procedures
3 Complete the construction of a distribution pipeline and connecting and disconnecting services	3.1 Work undertaken is checked against work schedule and anomalies reported to authorised persons in accordance with established procedures
	3.2 Accidents and incidents are actioned and reported to authorised persons in accordance with established procedures
	3.3 Work site is rehabilitated, cleaned up and made safe in accordance with given instructions and

ELEMENT**PERFORMANCE CRITERIA**

established procedures

- 3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures
- 3.5 Appropriate persons are notified of work completion according to established procedures
- 3.6 Work completion records, report forms and data sheets are completed accurately in accordance with given instructions and 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 constructing and laying distribution pipelines.

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

**KS01-G202 Distribution pipeline construction and lay
B****G 2.1.1 Work in the gas sector**

Evidence shall show an understanding of how work is conducted in the Gas Industry, specifically:

- The Gas Industry in Australia
- Australian gas resources
- Types of gas and uses
- Combustion.

G 2.1.2 Identify roles of statutory authorities

Evidence shall show an understanding of the roles of statutory authorities (government agencies, both State and

Federal) that operate in the Gas Industry, including identifying:

- Statutory bodies
- Roles of statutory bodies
- Employer and employee responsibilities to statutory bodies.

G 2.1.3 Identify employment roles and responsibilities

Evidence shall show an understanding of the roles of major groups in the Gas Industry, that is employers and employees, including:

- The role of the employer
- Industry associations
- Employer obligations to safety
- Identification of disadvantaged and minority groups in Australian society
- Employers obligations to persons from disadvantaged and minority groups
- Employers obligations to occupational health and safety
- The role of commonwealth and state training regulatory authorities and industry skills councils and state training advisory bodies
- Roles and responsibilities of gas industry employees
- The employment contract
- Working to safety requirements
- Work according to lawful commands
- Belonging to employee organisations
- How to work with people from disadvantaged and minority groups
- Understanding the employees obligations to occupational health and safety
- Sources of support.

G 2.1.4 Apply relevant OHS regulations, policies and procedures

Evidence shall show an understanding of the basic workplace health and safety legislation and how this applies to individuals in a Gas Industry workplace, indicated by the following:

- Employer's responsibilities to relevant OHS legislation
- Employee's responsibilities to OHS legislation and organisation's policies and procedures
- OHS policies and procedures at the worksite.
- Australian Standards, guidelines and codes of practice

G 2.1.5 Work safely in the gas industry by reducing risk and using correct PPE

Evidence shall show an understanding of how to work safely in the gas industry indicated by the ability to:

- Correctly interpret and comply with Safety Signs including workplace Hazards, Warnings and PPE requirements
- Correctly interpret gas markers
- Identify the correct PPE required for work in the Gas Industry
- Locate and comply with procedures for correctly checking, maintaining and storing PPE
- Apply the process of Hazard identification, Risk assessment and Control
- Complete Risk Assessment forms such as Work Permits and JHA's, JSA's, JSEA's, SWM's etc
- Report workplace hazards

G 2.1.6 Work safely with hazardous materials and equipment

Evidence shall show an understanding of what constitutes hazardous materials and the equipment and processes used to safely work with these indicated by the following:

- Identify hazardous materials and equipment
- Location and purpose of Material Safety Data Sheets (MSDS)
- Read, interpret and discuss MSDS
- Knowledge of methods for safe disposal of hazardous waste materials
- Read, interpret and discuss relevant manufacturer's specifications
- Use and dispose of hazardous materials and equipment safely
- Use of spill kits and PPE

G 2.1.7 Apply safe manual handling techniques in the workplace

Evidence shall show an understanding of manual handling and how to apply this knowledge to handling heavy and awkward objects in a Gas Industry workplace, specifically:

- Principles for managing manual handling
- Characteristics and types of safe manual handling
- Safe manual handling techniques
- Manual handling and risk management

G 2.1.8 Control traffic at the worksite

Evidence shall show knowledge and skills in coordinating traffic flow at a workplace where traffic control is required, that is, where work is conducted on or near a road, indicated by the following:

- Read and interpret relevant traffic authority regulations for traffic control at a worksite
- Identify signs and devices required to control pedestrians and traffic at a worksite depending on traffic flow volumes
- Apply techniques for controlling pedestrians and traffic at various worksites
- Use procedures for monitoring traffic controls
- Set up and monitor pedestrian and traffic controls

G 2.1.9 Respond to emergency and accident situations

Evidence shall show knowledge and skills in dealing with emergency or accident situations at a Gas Industry workplace, indicated by the following:

- Situations of accidents and emergency
- Comply with procedures for accidents and incidents
- Correct use of emergency equipment and procedures for a fire
- Correct use of breathing apparatus
- Correct use of gas detectors/oxygen monitoring devices
- Correct use of emergency equipment and procedures for a gas leak or vapour emission
- Report emergencies and accidents

G 2.1.14 Read and interpret Gas Industry documents

Evidence shall show an ability to read and interpret Gas Industry documents indicated by the following:

- Understand and use signs, symbols terminology and legends as used in gas industry procedures and documents
- Identify, locate and implement gas industry standards, policies and procedures
- Interpret and read basic drawings and diagrams

G 2.1.15 Complete workplace forms, and reports

Evidence shall show an ability to complete routine Gas Industry forms, memos and reports either written or electronic, indicated by the following:

- Identify, locate, interpret and use workplace forms, and reports
- Enter the required information accurately on gas industry

forms and reports

G 2.1.16 Identify requirements of work activity

Evidence shall show ability to:

- Clarify expected outcomes of a work activity in a Gas Industry workplace
- Receive, clarify and respond to verbal work instructions for work activity
- Interpret and discuss an organisation's policies, quality requirements and specifications for work activity

G 2.1.17 Apply basic planning skills

Evidence shall show a demonstrated ability to apply basic planning skills in a Gas Industry workplace, indicated by the following:

- Develop checklists of tasks
- Prioritise tasks
- Identify resources required to complete tasks safely and efficiently
- Identify resource or scheduling conflicts and apply solutions
- Develop time lines to complete tasks

G 2.1.18 Conduct tasks to complete work

Evidence shall show ability to organise the activities to complete a job in a Gas Industry workplace, indicated by the following:

- Locate and organise equipment, tools and machinery required to complete tasks safely and efficiently
- Complete tasks according to planned sequences and within appropriate timeframes
- Understand quality assurance and work according to established and standard operating procedures

G 2.1.19 Review work activities

Evidence shall show an ability to review work activities undertaken in a Gas Industry workplace, indicated by the following:

- Check work activities against a work plan
- Seek feedback on the outcome of work activities with appropriate persons
- Report outcomes of work activities in writing or orally according to enterprise procedures

G 2.1.20 Customer relations

Evidence shall show an understanding of the requirements for providing good customer relations to Gas Industry stakeholders, indicated by the following:

- Notify stakeholders of activities
- Communicate with stakeholders within scope of responsibilities
- Refer stakeholders to appropriate parties
- Demonstrate understanding of ring fencing requirements (if applicable)
- Keep the customer informed on job progress
- Provide good customer relations

G 2.1.21 Undertake problem solving

Evidence shall show an understanding of the requirements to undertake basic problem solving in a Gas Industry workplace, indicated by the following:

- Demonstrate problem solving and diagnostics methodology
- Identify possible solutions
- Recommend probable solutions and
- Apply basic problem solving techniques

G 2.1.22 Operate in confined spaces

Evidence shall show an understanding of the requirements to recognise and operate in confined spaces in a Gas Industry workplace, indicated by the following:

- Knowledge of the requirements of Legislation, Regulations, Australian Standards and enterprise specific procedures for safe working in confined spaces
- Ability to recognise what a confined space is and the entry safety requirements
- Ability to understand and comply with manufacturers' guidelines for the safe use of PPE used in confined spaces
- Understand how and when to use gas detectors for confined spaces entry
- Understand how and when to use breathing apparatus and rescue and recovery equipment

Note: A confined spaces entry ticket would satisfy and exceed the requirements of this EKAS clause

G 2.1.25 Protect the environment

Evidence shall show an understanding and ability to perform work in the gas industry in a manner that protects the environment indicated by the following:

- Understanding of the relevant Commonwealth/State/Territory environmental legislation, regulations and codes of practice
- Understanding of employee's and employer's responsibilities to relevant environmental legislation, regulations and codes
 - Understanding and compliance with enterprise procedures for flora control
 - erosion control
 - fauna control
 - the protection of indigenous and cultural heritage sites
- Understanding the role of regulatory bodies in monitoring environmental activities, risk and incident compliance
- Understanding community expectations for protecting the environment
- Correct use of environment protection procedures, records, inspections and incident reporting
- Identifying environmental hazards
- Assessing environmental risks
- Implementing environmental control measures
- Ability to respond to workplace environmental incidents

Note: Environmental damage can be caused by chemicals, oil, water contamination, carcinogenic agents, gases, dusts, waste contamination and noise

G 2.1.26 Communicate in the workplace

Evidence shall show an understanding and ability to communicate effectively in a Gas Industry work team indicated by the following:

- Effective use oral and written communications methods to achieve work related outcomes and solutions.
- Effectively receive, interpret and respond to workplace information and instructions
- Effectively convey and report work related information to fellow workers and customers
- Interact with fellow workers in a socially and culturally

appropriate manner

AND one or more of the following depending on pipe type:

If undertaking the laying of nylon pipe and PE pipe

G 2.2.12 Identify nylon or PVC pipeline, fittings and accessories

Evidence shall show an ability to identify the pipeline, fittings and accessories for nylon pipelines on a Gas Industry workplace, including:

- Characteristics of nylon or PVC pipeline, fittings and accessories
- Nylon or PVC pipe sizes, range of fitting and accessories.
- Situations in which a nylon or PVC pipeline is used
- Appropriate selection of transition fittings and adaptors to other materials
- Benefits of using a nylon or PVC pipeline
- Material cost versus Installation savings
- Differentiate nylon or PVC from other materials
- Awareness of solvent properties and benefits of current solvent over earlier versions
- Read and interpret MSDS applying appropriate measures

G 2.2.13 Join nylon or PVC pipeline and fittings

Evidence shall show an ability to join nylon or PVC pipes and fittings for a nylon or PVC pipeline on a Gas Industry workplace, indicated by the following:

- Selection and use of equipment, tools and materials required for joining nylon or PVC pipe, pipeline and fittings
- Demonstrate function and use of equipment, tools and materials
- Follow safety requirements and procedures for cutting and joining nylon or PVC pipe
- Undertake cutting and tapping procedures for nylon or PVC pipe using a variety of methods
- Pressure testing procedures
- Understand jointing requirements under various conditions, inclement weather etc
- Demonstrate procedures and safety requirements for joining nylon or PVC pipe to other pipelines

G 2.2.15 Determine depth of nylon or PVC pipeline in ground

Evidence shall show an ability to determine the depth at

which a pipe should be inserted in the ground for a gas distribution pipeline in a Gas Industry workplace, specifically:

- Identify depth of cover required for nylon or PVC pipeline in various locations
- Identify obstacles affecting minimum depth of cover for pipeline
- Develop solutions for dealing with obstacles affecting the depth of cover including transitioning to other approved materials and applying protection.

G 2.2.16 Install nylon or PVC pipe

Evidence shall show an understanding of the requirements to install nylon or PVC on Gas Industry pipelines, including:

- Application of Australian Standards and Gas Industry standards for installing nylon or PVC pipeline
- Conditions for direct installation or insertion of pipeline
- Procedures for installing nylon or PVC pipeline, trace wire and marker tape
- Procedures for terminating nylon or PVC pipeline
- Understand the procedures for installation of nylon or PVC pipeline under various conditions
- Static Electricity in gas pipes

G 2.2.17 Install PE pipeline, fittings and accessories

Evidence shall show an ability to install polyethylene pipelines, fittings and accessories in a Gas Industry workplace, including an understanding of:

- Differentiate PE from other materials
- Situations in which a PE pipeline is used
- Advantages and disadvantages of using a PE pipeline
- Suppliers specifications
- Appropriate selection of transition fittings and adaptors to other materials
- Various couplings & service connection tees
- Characteristics of PE HP, MP and LP pipeline, fittings and accessories
- Dimensions for series 2 pipe - Gas (SDR) from AS/NZS 4130
- PE pipe sizes, range of fitting and accessories eg differences between PE80 and PE100
- Allowable pipe damage
- Static Electricity in gas PE pipes
- Procedures for installing (including insertion, drilling and

- open cut method) PE pipeline, trace wire and marker tape
- Read and interpret MSDS applying appropriate measures

G 2.2.18 Join PE pipes and fittings

Evidence shall show an understanding of the requirements to join PE pipes and fittings for Gas Industry pipelines, indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Correct manual handling techniques
- Electrofusion safety requirements eg working in the rain
- Selection, purpose and use of equipment, tools and materials required for joining PE pipe, pipeline and fittings
- Pipe preparation
- Follow safety requirements and procedures for cutting and joining PE pipe
- Demonstrate function and use of equipment, tools and materials
 - Butt Fusion equipment small & Large
 - Saddle fusion equipment
 - Electro fusion equipment
 - Socket Fusion equipment
- Procedures for joining pipe of differing thickness
- Cooling time for moving pipe, tapping a saddle and pressure testing
- Identify the difference between a compliant and non-compliant joint
- Undertake cutting and tapping procedures for PE pipe using a variety of methods
- Pressure testing procedures
- Understand jointing procedures under various conditions, inclement weather and conditions
- Demonstrate procedures and safety requirements for joining PE pipe to other pipelines

If undertaking the laying of cast iron and steel pipe

G 2.2.20 Identify cast iron pipe and fittings

Evidence shall show an understanding of the knowledge required to install cast iron pipelines, fittings and accessories in a Gas Industry workplace, indicated by the following:

- Characteristics of cast iron pipeline, pipe sizes
- Situations in which a cast iron pipeline is used

- Range of fittings and accessories for cast iron
- Cast iron lead & hemp joints and how they are constructed
- Appropriate selection of transition fittings and adaptors to other materials
- Advantages/disadvantages in using cast iron pipe
- Read and interpret MSDS applying appropriate measures

G 2.2.21 Work with cast iron pipe and fittings

Evidence shall show an understanding of the requirements to work with cast iron pipelines and fittings on a Gas Industry pipeline, indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Dangers of working with live gas
- Equipment, tools and materials required for working with cast iron pipelines
- Purpose and function of equipment, tools and materials
- Requirements of Australian Standards and gas industry standards for working with cast iron pipe and fittings
- Safety requirements and procedures for using equipment, tools and materials
- Procedures for joining cast iron pipeline to other pipeline

G 2.2.23 Install steel pipeline, fittings and accessories

Evidence shall show an understanding of the requirements to install steel pipelines, fittings and accessories in a Gas Industry workplace (distribution), indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Dangers of working with live gas
- Safety considerations when working on steel such as bonding leads and voltage testers
- Characteristics of steel pipeline, fittings and accessories
- Benefits of using a steel pipeline
- Steel pipe sizes, range of fitting and accessories.
- Situations in which a steel pipeline is used in the distribution network
- Appropriate selection of transition fittings and adaptors to other materials
- Handling/Storage
- Cleaning internally
- Differentiate steel from other materials
- Corrosion mitigation

- Insulated joints
- Welding specifications
- Pressure testing
- Read and interpret MSDS applying appropriate measures
- Coating types and repair

G 2.2.24 Work with steel pipeline and fittings

Evidence shall show an understanding of the requirements to work with steel pipelines and fittings on a Gas Industry pipeline (distribution), indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Dangers of working with live gas
- Requirements of Australian Standards and Gas Industry standards for working with steel pipe and fittings
- Equipment, tools and materials required for working with steel pipelines
- Purpose and function of equipment, tools and materials
- Pipe cutting methods
- Stop off equipment for steel
- Safety requirements and procedures for using equipment, tools and materials
- Coating types and repair

G 2.2.26 Determine depth of steel pipeline in ground

Evidence shall show an ability to undertake the measurement of the depth that the pipeline should be buried on a Gas Industry pipeline (distribution), indicated by the following:

- Depth of cover requirements - AS1697
- Identify depth of cover required for steel pipeline in various locations
- Identify obstacles affecting minimum depth of cover for pipeline
- Develop solutions for dealing with obstacles affecting the depth of cover including transitioning to other approved materials and applying protection
- Trench widths
- Bedding requirements
- Support of steel pipe
- Backfilling requirements
- Reinstatement

If undertaking the laying of copper pipe

G 2.2.27 Identify copper pipeline, fittings and accessories

Evidence shall show an understanding of the processes required to identify copper pipeline, fittings and accessories on a Gas Industry pipeline, indicated by the following:

- Characteristics of copper pipeline, fittings and accessories
- Copper pipe sizes, range of fitting and accessories.
- Situations in which a copper pipeline is used
- Appropriate selection of transition fittings and adaptors to other materials
- Differentiate copper from other materials
- Read and interpret MSDS applying appropriate measures

G 2.2.28 Bend and join copper pipeline and fittings

Evidence shall show an ability to bend and join copper pipe and fittings for a Gas Industry pipeline, indicated by the following:

- Equipment, tools and materials required for joining copper pipeline and fittings
- Purpose and function of equipment, tools and materials
- Safety requirements and procedures for cutting and joining copper pipeline including mechanical and soldered or welded joints
- Procedures for cutting and tapping copper pipeline
- Procedures for pressure testing a pipeline
- Procedures and safety requirements for joining copper pipeline to other pipeline
- Procedures for joining copper pipeline

G 2.2.30 Determine depth of copper pipeline in ground

Evidence shall show an ability to determine the appropriate depth that copper pipe should be laid in a trench for a Gas Industry pipeline, indicated by the following:

- Depth of cover requirements - AS1697
- Identify depth of cover required for copper pipeline in various locations
- Identify obstacles affecting minimum depth of cover for pipeline
- Develop solutions for dealing with obstacles affecting the depth of cover including transitioning to other approved materials and applying protection
- Trench widths
- Bedding requirements

- Support of copper pipe
- Backfilling requirements
- Reinstatement

G 2.2.31 Install copper pipe

Evidence shall show an understanding of how to install copper pipe on a Gas Industry pipeline, indicated by the following:

- Requirements of Australian Standard and Gas Industry standards for installing copper pipeline
- Need to install or insert pipeline
- Procedures for installing copper pipeline
- Procedures for terminating copper pipeline

G 2.2.32 Comply with requirements for excavating and reinstating site

Evidence shall show an understanding of the requirements for preparing, conducting and completing an excavation indicated by the following:

- Identifying plans, codes, standards and drawings relevant to specific worksites
- Reading and interpreting relevant plans, codes, standards and drawings
- Regulatory requirements and procedures for excavating trenches and reinstating sites
- Apply shoring or benching requirements
- Notification of appropriate authorities and requirements for temporary or permanent restorations

G 2.2.33 Locate utilities and services

Evidence shall show an understanding and an ability to locate services, indicated by the following:

- Identification of relevant authorities or enterprises to contact regarding the location of other utilities services (gas, water, electricity, telecommunication, sewerage and stormwater)
- Read and interpret plans and drawings to identify the location of utilities and services
- Identification of utilities and services conduits and cables
- Correct use of electronic and manual service locators
- Apply hand excavation as required for the purposes of locating utilities and services

G 2.2.43 Appliance relighting within enterprise guidelines

Evidence shall show an understanding of Appliance

relighting indicated by the following:

- Customer liaison skills
- Identify environmental and safety hazards, assess risks and implement control measures
- Safety requirements for entering domestic and commercial customer sites
- Procedures for purging service lines
- Procedures for conducting appliance relights

G 2.2.44 Handling, Transporting and Installing Meters and Regulators for services within enterprise guidelines

Evidence shall show an understanding of handling, transporting and installing meters and regulators for a service, indicated by the following:

- Customer liaison skills
- Identify environmental and safety hazards, assess risks and implement control measures
- Knowledge of Australian Standards associated with the installation of gas meters and regulators
- Identify that the regulator is working correctly
- Replace faulty regulator with a comparable regulator
- Measuring and testing flow rates and lock ups
- Correct manual handling procedures
- Safety requirements for entering domestic and commercial customer sites
- Procedures for purging service lines
- Procedures for gas leak and gas flow testing
- Test the equipment to recognised gas industry standards
- Completion of necessary connection forms and processes

G 2.2.49 Connect and tie in a residential service

Evidence shall show an understanding and demonstration for connecting and tying in residential gas services, indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Safety requirements and procedures for connecting and tying in a residential gas service
- Equipment, tools and materials required for working on a residential gas services
- Purging requirements used for residential connections
- Gas leak testing procedures for residential services
- Pressure testing procedures for residential services
- Apply procedures for ensuring continuity of supply

including checking of network maps, gauging, fitting of bypasses and purging.

- Test the residential gas service to recognised gas industry standards
- Replace/Repair marker tape
- Apply appropriate procedures in the event of uncontrolled gas escapes
- Tie in and commission a residential service

G 2.2.50 Connect and tie in a commercial/industrial service and disconnect, reconnect gas industry services

Evidence shall show an understanding and demonstration for disconnecting, reconnecting and tying in a gas services, indicated by the following:

- Identify environmental and safety hazards, assess risks and implement control measures
- Safety requirements and procedures for disconnecting, reconnecting and tying in commercial and industrial gas services
- Equipment, tools and materials required for working with a range of commercial and industrial gas services
- Purging requirements used for residential, industrial and commercial connections
- Gas leak testing procedures
- Pressure testing procedures
- Apply procedures for ensuring continuity of supply including checking of network maps, gauging, fitting of bypasses and purging.
- Test the gas service to recognised gas industry standards
- Replace/Repair marker tape
- Apply appropriate procedures in the event of uncontrolled gas escapes
- Tie in and commission service

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 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 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, policies and workplace procedures
- Demonstrate performance across a representative range of contexts from the prescribed items below. Complete Groups A and B. Complete 1 of the following Groups: Group C, D. Complete 2 of the following Groups: E, F, G, H. Complete Groups I and J.

Range of tools/equipment/procedures/workplace
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Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	All	Interpret technical drawings and symbols Isolate, vent and purge gas pipeline systems and services Operation of gas detector Emergency response procedures Operate service locator Use and interpret Dial Before You Dig reports
B	At least 2	Excavation Trenching Stich bore Horizontal drilling Directional drilling
C	At least 4	Nylon (Polyamide) pipeline laying techniques Nylon gluing Connection of Nylon to other materials UPVC pipeline laying techniques UPVC solvent cemented joints UPVC moulded joints UPVC compression couplings or flanges Connection of UPVC to other materials Practical application of AS4645.3 'gas distribution networks plastics pipe systems'

D	At least 4	Saddle Fusion PE pipeline laying techniques PE Electrofusion PE Butt Fusion Compression couplings or flanges Connection of PE to other materials Practical application of AS4645.3 'gas distribution networks plastics pipe systems'
E	At least 2	Steel pipeline coating repair Steel pipeline coating testing Steel field joint coating
F	At least 3At least 3	Connection of steel to other materials Sleeve application Clamp application Hot tap and stopple Practical application of AS4645.2 'gas distribution networks – steel pipe systems'
G	All	Connection of copper to other materials Silver brazing Copper bending
H	All	Work utilising relevant OHS legislation, regulations, codes of practice, policies and procedures Working knowledge of the

		relevant confined space entry compliance code Maintain a safe and clean workplace Work safely with hazardous materials and equipment Apply safe manual handling techniques Communicate effectively in the workplace Apply basic planning skills
I	All	Install services in accordance with procedures and with minimum impact on landscaping Disconnect services Connect and test services Light appliances
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 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 constructing and laying distribution pipelines.

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, 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.

UEGNSG102B Carry out work activities in a utilities industry work environment

UEENEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEGNSG104B Comply with environmental policies and procedures

UEGNSG105B Establish the work site

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 construction and laying of distribution pipelines.

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:

Services (2)

Appropriate persons (2)

Materials (2)

Tools and equipment (2)

Safe working procedures (2)

Legislative requirements (2)

Unit Sector(s)

Not applicable.

Competency Field

Competency Field 11)

Distribution.