



Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG211A Lay underground electrical supply cables

Release: 1

UEGNSG211A Lay underground electrical supply cables

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

This Unit covers the laying of electrical supply cables for and includes the laying of ducts and/or conduit for such cables in accordance with requirements and procedures. It could include direct laying of cables in trenches, on racks, in troughs and /or in conduit or ducts. It also encompasses cable pulling methods, pulling tensions, minimum bending radii, reduction of frictional forces, use of supporting plant (e.g. dynamometers, rigging, winches, etc), working on FRC, PVC, A/C ducted systems and the sealing of cables. It excludes termination and connections of any form.

Application of the Unit

Application of the Unit

3)

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

3.1)

The skills and knowledge described in this unit are not

License to practice**3.1)**

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)****2)****Competencies****2.1)**

Granting of competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed:

Nil

Employability Skills Information

Refer to the Evidence Guide

Elements and Performance Criteria Pre-Content

5) 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 to lay electrical cables	<p>1.1 Works schedule(s), including drawings, plans, requirements, established procedures, and material lists, are received and confirmed, if necessary, by site inspection</p> <p>1.2 Relevant requirements and established procedures for the work are discussed with other personnel and identified for all work sites</p> <p>1.3 OHS policies and procedures related to requirements and established procedures for the laying of electrical cables are obtained and confirmed for the purposes of the work to be performed and communicated</p> <p>1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures</p> <p>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.</p> <p>1.6 Relevant work permits are obtained to access and perform work according to requirements and/or established procedures</p> <p>1.7 Resources including personnel, equipment, tools and personal protective equipment required for the job are obtained and confirmed in working order</p> <p>1.8 Relevant personnel at worksite are confirmed current in First Aid and other related work procedures according to requirements</p> <p>1.9 Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved to carry out work where necessary</p> <p>1.10 Site is prepared according to the work schedule and to minimise risk and damage to property,</p>

ELEMENT	PERFORMANCE CRITERIA
	commerce, and individuals in accordance with established procedures
	1.11 Personnel 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 Traffic management plan is identified and implemented
2 Carry out the laying of electrical cables	2.1 OHS, Sustainable Energy and Environmental principles and practices to reduce the incidents of accidents and minimise waste are followed in accordance with requirements and/or established procedures
	2.2 Lifting, climbing, working in confined spaces and aloft, use of power tools/equipment, techniques and practices are safely followed and currency according to requirements confirmed
	2.3 Essential Knowledge and Associated Skills in the safe laying of electrical cable are applied to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
	2.4 Electrical cables are laid in accordance with the work schedule and requirements/established procedures
	2.5 Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the authorised persons for directions according to established procedures
	2.6 Unplanned events in the laying of electrical cables are undertaken within the scope of established procedures
	2.7 Known solutions to a variety of problems are applied using routine procedures
	2.8 Ongoing checks of work quality are undertaken in accordance with instructions and established

ELEMENT	PERFORMANCE CRITERIA
	procedures
3 Complete the laying of electrical cables	<p>3.1 Work undertaken is checked against works schedule for conformance with requirements and anomalies reported in accordance with established procedures</p> <p>3.2 Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable</p> <p>3.3 Work site is rehabilitated, cleaned up and made safe in accordance with established procedures</p> <p>3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage or disposed of in accordance with established procedures</p> <p>3.5 Relevant work permit(s), works completion records, reports, drawings and/or documentation and information are actually completed and appropriate personnel notified</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

6) 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 laying electrical underground cables. The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

- G 2.1.1 Working in the gas sector
- G 2.1.4 Apply relevant OHS regulations, policies and procedures
- G 2.1.5 Maintain a safe, clean and healthy workplace
- G 2.1.6 Work safely with hazardous materials and

REQUIRED SKILLS AND KNOWLEDGE

equipment

- G 2.1.7 Apply safe manual handling techniques in the workplace
- G 2.1.9 Respond to emergency and accident situations
- G 2.1.10 Apply relevant environmental legislation, regulations and codes of practice
- G 2.1.11 Protect and maintain the environment
- G 2.1.12 Communicate in the workplace
- G 2.1.13 Communicate effectively in a team
- G 2.1.14 Read and interpret workplace documents
- G 2.1.15 Complete routine workplace forms, memos and reports
- G 2.1.16 Identify requirements of work activity
- G 2.1.17 Apply basic planning skills
- G 2.1.19 Review work activities
- G 2.1.21 Problem solving
- G 2.1.22 Confined spaces
- G 2.1.24 Work-site environmental impact
- G 2.2.32 Apply regulatory requirements for preparing and excavating trenches and reinstating site
- G 2.2.33 Locate other utilities and services
- G 2.2.34 Use tools, materials and equipment
- G 2.2.35 Prepare the site
- G 2.2.36 Set out trenches
- G 2.2.37 Excavate trenches
- G 2.2.38 Reinstatement site
- T 2.1.9. Stores procedures

REQUIRED SKILLS AND KNOWLEDGE

T 2.2.12 Underground cable installation

T 2.2.23 Underground cable construction

Evidence Guide

EVIDENCE GUIDE

8) The Evidence Guide forms an integral part of this Unit and shall be used in conjunction with all components parts of the 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.

EVIDENCE GUIDE

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 UEG06'. 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 skills enabling employment
 - 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.

Range of tools/equipment/materials/procedures/workplaces/other variables		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	At least one of the	HV polymeric

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	following	HV paper insulated
B	At least one of the following	LV polymeric LV paper insulated
C	At least one of the following	Direct lay On racks In conduits
D	At least one cable pulling methods of the following	Stocking pulling Bond pulling Armour pulling Nose pull attachments
E	At least two cable sealing methods of the following	Heat shrinkable Pre-stretched materials Tin/lead wiping Pre-moulded components
F	At least one cable cutting methods of the following	Hydraulic cutters Electric reciprocating Motorised Hand tools
G	At least four of the following	Drum jacks Winches Spindles Capstans Bollards Cable trailers Rollers Lubricants Ropes Bell mouths Draw wires/rods
H	At least one	Deal with an unplanned event

EVIDENCE GUIDE

	occasion	by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items
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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:

- 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 specific resources for assessment, evidence should show demonstrated competency in laying underground electrical supply cables.

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

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 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

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

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with allied Competency Standard Units where listed.

UEGNSG102 Carry out work activities in a utilities industry
A work environment

UEGNSG103 Comply with workplace OHS procedures and
A practices

UEGNSG104 Comply with environmental policies and
A procedures

UEGNSG105 Establish the work site
A

Key Competencies **8.6)** Evidence that particular key competencies have been achieved within this Competency Standard Unit is in the context of the following Performance Criteria of evidence. See Volume 2, Part 4 for an explanation of Key Competencies and levels of this Training Package.

Key Competencies	Example of Application	Performance Level
How are ideas and information communicated within this competency?	Refer to the following Performance Criteria for examples of application: 1.8; 3.2	3
How can information be collected, analysed and organised?	Refer to the following Performance Criteria for examples of application: 1.1; 1.5	2
How are activities planned and organised?	Refer to the following Performance Criteria for examples of application: 1.10; 2.8	2
How is team work used within this competency?	Refer to the following Performance Criteria for examples of application: 1.9; 1.11	1

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How are mathematical ideas and techniques used?	Refer to the following Performance Criteria for examples of application:	N/A
How are problem solving skills applied?	Refer to the following Performance Criteria for examples of application: 2.8; 2.9	2
How is use of technology applied?	Refer to the following Performance Criteria for examples of application: 3.4	2

Skills Enabling Employment**8.7)**

Evidence that competency in this unit incorporates skills enabling employment is in the context of the following performance. See Volume 2, Part 5 for definitions and an explanation of skills enabling employment.

Skills for Employment		Example of Application
1	Developing and using skills within a real workplace	Refer to the following Performance Criteria for examples of application: All
2	Learning to learn in the workplace	Refer to the following Performance Criteria for examples of application: 2.8; 2.9
3	Reflecting on the outcome and process of work task	Refer to the following Performance Criteria for examples of application: 3.4; 3.6
4	Interacting and understanding of the context of the work task	Refer to the following Performance Criteria for examples of application: 1.4; 1.9; 3.6

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5	Planning and organising the meaningful work task	Refer to the following Performance Criteria for examples of application: 1.4; 1.5; 1.7; 1.9
6	Performing the work task in non-routine or contingent situations	Refer to the following Performance Criteria for examples of application: 2.8

Range Statement

RANGE STATEMENT

7) 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/may be demonstrated in relation to laying electrical underground cables.

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:

Appropriate persons (3)

Appropriate authorities

Appropriate work platform.

Assessing risk

Assessment

Authorisation

Confined space

Diagnostic, testing and restoration.

Documenting detail work events, record keeping and/or storage of information.

Drawings and specifications

Emergency

Environmental and Sustainable Energy Procedures

Environmental legislation

Environmental management documentation

Established procedures.

Hazards

Inspect

MSDS

Notification

OHS policies and procedures

Permits

Testing procedures

Unit Sector(s)

Not Applicable

Literacy and numeracy skills

Literacy and numeracy skills 2.2)

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

Competency Field

Competency Field 4)

Distribution.