



Australian Government

Department of Education, Employment and Workplace Relations

UETTDREL16A Working safely near live electrical apparatus

Release: 1

UETTDREL16A Working safely near live electrical apparatus

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers compliance with working safely up to the defined “safe approach distance” near energised electrical apparatus (inc. electrical powerlines) for electrical worker. It includes work functions that may be performed, such as vegetation control, scaffolding, rigging, painting, and/or any other activity that requires working safely and complying with requirements and/or established procedures near live electrical apparatus by an electrical worker. Also included is the preparation of risk assessment control measures that encompass job safety assessment. It does not include any work that is or may be performed by other competent operatives within the defined “safe working zone”. The defined “safe working zone” is that so defined by relevant State or Territory regulatory agencies/bodies, local government legislation, Industry bi-partite body – Guidelines/Codes of Practices or other related requirements for Safe work and access near live Electrical and Mechanical Apparatus.

Application of the Unit

Application of the Unit 2)

This competency standards unit shall apply to Transmission, Distribution, Rail Traction, Telecommunications and Vegetation Management Control industry sectors.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit may require a licence/registration to practice in the work place subject to regulations for undertaking of electrical work. Practice in workplace and during training is also subject to regulations directly related to Occupational Health and Safety, electricity/telecommunications/gas/water industry safety and compliance, industrial relations, environmental protection, anti discrimination and training. 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.

Where pre-requisite pathways have been identified. 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):

There are no prerequisite competencies to this unit.

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)

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 to work safely near live electrical apparatus as electrical worker	<p>1.1 Instructions related to the work to be performed safely near live electrical apparatus as electrical worker are received and confirmed.</p> <p>1.2 Relevant requirements and established procedures to be followed and, relevant personnel to be communicated with for the work to be performed are identified.</p> <p>1.3 OHS policies and procedures to be followed for the work to be performed are received and confirmed.</p> <p>1.4 Suggestions to assist in meeting the safety requirements for working near live electrical apparatus as an electrical worker are made to others involved in the work.</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>

ELEMENT**PERFORMANCE CRITERIA**

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|---|--|---|
| | 1.6 | Scope of responsibility and process of relevant work permit(s) issue is identified, received and confirmed according to requirements and established procedures. |
| | 1.7 | Relevant responsibility associated with First Aid, Safety Observers and/or other related work safety procedures at the worksite are identified in accordance with requirements and established procedures to ensure safety measures are followed in the instance of an incident. |
| | 1.8 | Processes for identifying and reporting client issues to appropriate personnel in accordance with industry/acceptable /community standards are identified. |
| | 1.9 | Site and the work schedule to be prepared are confirmed according to given instructions for a quality outcome and to minimise risk and damage to property, commerce, stock and individuals in accordance and established procedures. |
| | 1.10 | Electricity infrastructure assets, related voltages and requirements for working safely near live electrical apparatus as electrical worker are identified. |
| | 1.11 | Safe approach distances including any zones thereof that may apply, as defined in industry guidelines, requirements and/or established procedures for the intended work are confirmed. |
| 2 | Carry out the work safely near live electrical apparatus as electrical worker. | <p>2.1 OHS principles and practices to reduce the incidents of accidents are identified in accordance with given instructions, requirements and/or established procedures.</p> <p>2.2 Working safely and complying with all safety requirements for working near live electrical apparatus as an electrical worker are followed in accordance with given instructions and established routines/procedures.</p> <p>2.3 Processes for monitoring and reporting/referring hazards and OHS risks to the immediate</p> |

ELEMENT	PERFORMANCE CRITERIA
	authorised personnel for directions according to established procedures are followed.
	2.4 Non-routine events are referred to the immediate authorised personnel for directions according to established procedures.
	2.5 Unexpected events associated with working safely near live electrical apparatus as an electrical worker are responded to using acquired known solutions and skills related to routine procedures to ensure work instructions and established procedures are met.
3 Complete the work safely near live electrical apparatus as electrical worker.	3.1 Work schedule and anomalies for completion and checking of the work are reported to authorised personnel in accordance with established procedures.
	3.2 Processes for reporting to authorised personnel accidents and/or incidents are confirmed in accordance with established procedures.
	3.3 Requirements for returning work permit(s) and/or access authorisation permits are confirmed.
	3.4 Appropriate personnel are notified of work completion according to established procedures.
	3.5 Works completion records, report forms/data sheets are completed accurately in accordance with given instructions and established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) Essential Knowledge and Associated Skills (EKAS): This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of working safely near live electrical apparatus as electrical worker.

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

KS01-TEL16A ESI safe work practices near live electrical apparatus

Evidence shall show an understanding of ESI safe work practices near live electrical apparatus to an extent indicated by the following aspects:

T1 Electrical safety and principles encompassing:

- Hazards encountered in an electrical environment and safety procedures for dealing with them - types of hazards (hazards include electrical shock, fire from an electrical source, chemical hazards and fall hazards.), factors indicating general unsafe work practices and conditions, safety practices in the use of common tools and plant.
- Rescue techniques and first aid treatment of an electric shock victim - methods to rescue an electrical shock victim in contact with live equipment or conductors, accepted first aid treatment for burns, bleeding and shock, procedures for conducting EAR and CPR.
- Procedures for dealing with fires and hazardous chemicals associated with electrical equipment - selection and use of different types of equipment used to fight fires associated with electrical equipment, procedures for dealing with a fire associated with electrical equipment, procedures for dealing with PCBs.
- Basic circuit components and state the function of each - sources of electrical supply, control switches, types and functions of resistive consuming devices, basic circuit components symbols used in electrical diagrams.
- Connection of basic electrical circuits and measurement of circuit parameters - connection of components that make up a single-source single-load circuit, relationship between voltage and current in such circuits, consequences of a short-circuit and an open-circuit.
- Determining the voltage, current and resistance - calculation methods, measurement methods.
- Cable and conductor terminations to Australian/New Zealand standards - types of terminations, cable conductor preparation, prepare conductor for termination, termination method (conductor terminations include soldered and pressure types).

T2 Transmission, distribution and rail systems encompassing:

- Relationship between the transmission, distribution and rail/tram system within an overall power system - different organisations responsible for generation, transmission, distribution and rail/tram and, how they correlate and their functions
- Characteristics of a transmission, a distribution and a rail system - principal

REQUIRED SKILLS AND KNOWLEDGE

components, typical voltage levels and methods of transmission and distribution including grid type transmission systems, radial, parallel and ring main feeders

- Relationship between an overhead and underground supply systems within an overall power system - advantages/disadvantages, applications and the basic steps for planning and installing an overhead and underground distribution system
- Single line drawings and layouts - drawings and layouts of transmission and distribution systems including, radial, parallel and ring main feeders and the HV equipment associated with substations

T3 Fundamentals for working safely near live electrical apparatus encompassing:

- Standards, guidelines/codes of practice, State/Territory/local government legislation, supply authority regulations and or enterprise requirements including relevant certification and licensing, applicable to working safely up to the defined “safe working zone” near energised electrical apparatus (inc. electrical powerlines) for non-electrical worker
- Definitions of terminologies - ‘safe working zone’ ‘risk assessment’, ‘safe approach distances zones’, ‘safe working distances’. ‘work permits’, access authorisation permits’, ‘Technical standards’ ‘isolation procedures’ and compliance requirements’
- OHS policies and procedures for working safely - emergency response and First Aid procedures such as CPR, roles and responsibilities of employers, employees and other parties under OHS legislation, personal protective equipment, identifying hazards, assessing and controlling OHS risks, first aid procedures, duties of a safety observer, working at heights/confined spaces, permit to work systems and isolation procedures, safe application of different types of tools and equipment
- Operation of mobile plant and machinery (e.g. EWP) near live electrical apparatus
- Electricity supply infrastructure assets and voltages
- Techniques and precautions in undertaking different work functions and working safely up to the defined “safe working zone” near energised electrical apparatus (inc. electrical powerlines) for non-electrical worker - work functions that may be performed include, vegetation control, scaffolding, rigging, painting, and/or any other activity that requires working safely near live electrical apparatus by a non-electrical worker.

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the range statement of the competency standard unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all component parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry and, Regulatory policy in this regard.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently 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 – UET1211”. 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; and
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range; and
 - 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; and
 - Demonstrate an appropriate level of employability skills; and
- Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures; and
- Demonstrated 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	Item List

	demonstrated	
A	All of the following:	<p>Confirmation of the "safe working zone" for Safe work and access near live Electrical Apparatus</p> <p>Identification of the relevant technical standards. Acts, regulations and codes/guidelines</p> <p>Identification of established (Enterprise) procedures</p>
B	All of the following:	<p>Confirmation of the principles of electricity, the three phase power system, electric shock and resuscitation, power system</p> <p>Recognition of aerial voltage systems</p> <p>Identification of Low Voltage Aerial Circuits</p> <p>Identification of High Voltage</p>
C	All of the following:	<p>Procedures in the event of an incident</p> <p>Events constituting an incident</p> <p>Procedures for responding to incidents</p> <p>Hazard and risk assessment procedure</p> <p>Conduct Work-site Hazard Assessment</p> <p>Confirmation of essential components of Hazard Assessment Checks</p> <p>Applying Hazard</p>

		<p>Identification in Electrical Work</p> <p>Confirmation of the Basic Safety Principles for Work on Electrical works</p> <p>Hazard Identification and Risk Assessment</p> <p>Hazard Control</p> <p>Risk Assessment and Management (JSAs) Control</p> <p>The Hierarchy of Controls including Evaluation, Worksite Hazard and Risk Assessment Checklist, Pre-job Hazard Assessment Check (HAC) Items, Planned Inspection and Pre-Work Hazard Risk Assessment Form</p>
D	All of the following:	<p>Use of work permits and/or authorisation permits</p> <p>Sustainable energy principles and practices</p> <p>Possible affects of weather conditions on working near electrical apparatus as a electrical worker</p>
E	At least one occasion	<p>Dealing 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.</p>

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 safely undertake actual work near live electrical apparatus

In addition to the resources listed above, in context of and specific resources for assessment, evidence should show demonstrated competency working below ground, in limited spaces, with different structural/construction types and method and in a variety of environments.

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)

For optimisation of training and assessment effort, competence in this unit is not recommended to be assessed concurrently with any other unit.

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 safe working so defined by relevant State or Territory regulatory agencies/bodies, local government legislation, Industry bi-partite body – Guidelines/Codes of Practices or other related requirements for Safe work and access near live Electrical Apparatus.

Work functions that may be performed, such as vegetation control, operation of cranes, elevating work platforms, excavators, concrete pumps etc, scaffolding, rigging, painting, and/or any other activity that requires working safely and complying with requirements and/or established procedures near live electrical apparatus by a electrical worker/

Working safely up to the defined “safe working zone” near energised electrical apparatus (inc. electrical powerlines) for electrical worker including an understanding of risk assessment control measures that encompass job safety assessment but excluding any work that is or may be performed by other competent operatives within the defined “safe working zone”.

Safe use of plant, equipment and tools within electrical environments including but not limited by the electricity supply infrastructure assets, infrastructure constructions and excavations including an understanding of safe approach distances zones/Safe Working Clearance, work permit(s) and/or access authorisation permits, technical standards and Industry Guidelines, rural applications, road construction, pavements and effect of inclement weather

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section 1 of this volume and form an integral part of the Range Statement of this unit:

- Appropriate and relevant persons
- Appropriate authorities
- Assessing risk
- Authorisation
- Drawings and specifications
- Emergency
- Established procedures
- Hazards
- Identifying hazards
- Legislation
- Notification
- OHS practices
- OHS issues

RANGE STATEMENT

- Permits and/or permits to work
- Work clearance systems

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Entry Level – Cross Discipline Units.