



Australian Government

UETTDREL15 Respond to power systems technical enquiries and requests

Release: 1

UETTDREL15 Respond to power systems technical enquiries and requests

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package.

Application

This Unit covers responding to enquiries of a technical nature using electricity supply industry (ESI) transmission, distribution and rail/tram network requirements, techniques and processes. It includes the relevant application of knowledge of relevant Acts and regulations, codes of practice, guidelines and compliance regimes, and arrangements used to facilitate a response to enquiries or requests. The enquiries may be internal or with customers.

Note: examples include storm codes identification of key equipment, recognition of normal and abnormal industry situations, key processes and systems used in the industry, such as maps and the application of general safety and environmental processes and practices used in the industry.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace subject to regulations for undertaking of electrical work.

Other conditions may apply under state and territory legislative and regulatory licencing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

There are no prerequisite competencies to this unit.

Competency Field

Entry Level Cross Discipline

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to respond to technical enquiries and requests

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Instructions related to responding to enquiries using industry requirements, techniques and processes of a technical nature to be performed are received and confirmed
- 1.2** Relevant requirements and established procedures to be followed and relevant personnel (including internal and/or customer) to be communicated with for the work to be performed are identified
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS) policies and procedures to be followed for the work to be performed are received and confirmed
- 1.4** Suggestions to assist in meeting the safety requirements for responding to technical enquiries and requests are made to others involved in the work
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures prioritised, implemented and monitored, including emergency exits kept clear according to established procedures
- 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 (including internal and customer) issues to appropriate personnel in accordance with industry/acceptable/community standards are identified
- 1.9** Workplace and the work schedule are confirmed according to given instructions for a quality outcome and to minimise risk and damage to property, commerce, stock and individuals in accordance with

established procedures

- 1.10** Electricity infrastructure assets, related voltages and requirements, where applicable, for working safely near live electrical apparatus as non-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 responses to technical enquiries and requests**
 - 2.1** WHS/OHS principles and practices to reduce the incidents of accidents are identified in accordance with given instructions, requirements and/or established procedures
 - 2.2** Enquiries and/or requests are responded to according to requirements and established procedures, and in a timely manner
 - 2.3** Working safely and complying with all safety requirements for responding to technical enquiries and requests are followed in accordance with given instructions and established routines/procedures
 - 2.4** Processes for monitoring and reporting/referring hazards and WHS/OHS risks to the immediate authorised personnel for directions according to established procedures are followed
 - 2.5** Non-routine events are referred to the immediate authorised personnel for directions according to established procedures
 - 2.6** Essential knowledge and associated skills are applied in the application of responding to technical enquiries and requests to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
 - 2.7** Unexpected events associated with enquiries and/or requests of a technical nature are responded to using acquired known solutions and skills related to routine procedures to ensure work instructions and established procedures are met
- 3 Complete responses to technical enquiries and**
 - 3.1** Work schedule and anomalies for completion and checking of the work are reported to authorised

requests

personnel in accordance with established procedures

- 3.2** Processes for reporting accidents and/or incidents to authorised personnel are confirmed in accordance with established procedures
- 3.3** Requirements for returning work permit(s) and/or access authorisation permits, where applicable, are confirmed
- 3.4** Appropriate personnel are notified of work completion according to established procedures
- 3.5** Works completion records and/or report forms/data sheets are completed accurately in accordance with given instructions and established procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDREL15A Respond to power systems technical enquiries and requests.

Links

UET Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETTDREL15 Respond to power systems technical enquiries and requests

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- confirming safe working zone for safe work and access near live electrical and mechanical apparatus
- applying knowledge of relevant acts and regulations, codes of practice, guidelines and compliance regimes, and arrangements used
- identifying established (enterprise) procedures and processes
- confirming the principles of electricity, three phase power system, electric shock and resuscitation, and power system
- recognising aerial voltage systems
- identifying low voltage (LV) networks
- identifying high voltage (HV) networks
- identifying all of the following:
 - procedures in the event of an incident
 - events constituting an incident
 - procedures for responding to incidents
 - hazard and risk assessment general principles and procedures
 - principles for conducting worksite hazard assessment checks, basic safety principles and hazard control measures
- identifying all of the following:
 - purpose and use of work and/or authorisation permits
 - possible effects of weather conditions on working near electrical apparatus as a non-electrical worker
- applying knowledge of critical codes in the industry, e.g. storm code emergencies
- identifying key equipment used in the industry
- recognising normal and abnormal industry situations
- responding to a technical enquiry or request in accordance with established procedures and

timely manner

- dealing with unplanned events on at least one (1) occasion.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- engineering applications of material properties encompassing:
 - identification and classification of engineering materials, including material properties
 - types and applications - properties of tensile strength; effects of temperature on the expansion of metals; ductibility, malleability, work hardening and annealing and the conditions that lead to corrosion; and the properties of timbers
- generation power systems encompassing:
 - methods of generating electricity - types of power stations and reasons for their location, and layout of thermal and hydroelectric power stations
 - relationship between power control and load requirements - operating speeds for thermal and hydroelectric generating sets, typical generator voltage levels and output ratings
 - the purpose and features of typical types of co-generation systems
- transmission, distribution and rail power 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 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 high voltage (HV) equipment associated with substations
- 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 (including, electrical powerlines) for non-electrical workers
 - 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
 - WHS/OHS policies and procedures for working safely - emergency response and first aid procedures, such as cardiopulmonary resuscitation (CPR); roles and responsibilities of employers, employees and other parties under WHS/OHS legislation; personal protective equipment (PPE); identifying hazards; assessing and controlling WHS/OHS risks; 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, such as an elevated work platform (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 (including 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)
- enterprise-specific policies, procedures and instructions encompassing:
 - responsibilities and duty of care of employer and employee relationship
 - methods of obtaining up-to-date information on enterprise policies and procedures
 - rules and regulations
 - induction into workplace - location of work area and storage area, timetable, uniform, personal wellbeing, housekeeping rules, emergency procedures and evacuation procedures
 - techniques when dealing with others - working in teams, customer relation, complaint and issues procedures
 - overview of enterprise professional development - fire-fighting procedures, fatigue management, training and competency development - understanding and promotion
- enterprises-specific WHS/OHS instructions encompassing:
 - standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to WHS/OHS policies and procedures
 - methods of obtaining up-to-date information on enterprise WHS/OHS policies and procedures
 - specific enterprise PPE - type and application, where and when to be used, method of replacement, and responsibility for maintenance, including cleaning, inspection and testing
 - emergency response, rescue, evacuation and first aid procedures
 - personal wellbeing – hygiene, fatigue/stress management and drugs/alcohol
 - WHS/OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, training as part of broader programs, such as equipment operation
 - WHS/OHS records - audits; inspection reports; workplace health and environmental monitoring records; training and instruction records; manufacturer and supplier information, such as material safety data sheets (MSDS); registers; maintenance reports; workers compensation and rehabilitation records; and first aid/medical records
- enterprise-specific technical drawing and documents encompassing:
 - types and application of enterprise-specific drawings and documents - electrical and electronic drawings, mechanical drawings, project charts, schedules, graphs, technical manuals and catalogues
 - instructions/worksheets - types and application of enterprise-specific symbols and

diagrams

- title box - description of parts and version control
- basic network operating principles and parameters encompassing:
 - sources of electricity
 - basic principles of electricity, three phase power system, electric shock and resuscitation, and power system
 - aerial and underground voltage systems
 - LV network systems
 - HV network systems
 - equipment used in a network system
 - multiple earthed neutral (MEN) system
 - hazards and risks in a network system - risk to life, property or commerce, fallen wires/equipment and fires
 - voltage gradients - step potential and touch potential (transferred earth potentials)
- applicable legislation, regulations, standards, industry codes, industry guidelines and policies encompassing:
 - relevant sections of legislation used
 - relevant sections of international or Australian Standards used
 - relevant sections of industry codes used
 - relevant sections of industry guidelines used
 - relevant sections of policies used
 - relevant sections of advisory information used
- incident event procedures
- incidents constituting an event
- incidence response procedures
- general hazard and risk assessment principles and procedures
- principles for conducting worksite hazard assessment checks
- basic safety principles and hazard control measures
- key industry terms and performance indicators and measures used - System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Momentary Average Interruption Frequency Index (MAIFI), Customer Average Interruption Duration Index (CAIDI), and network owners and operators
- critical industry codes used - storm code emergencies
- key equipment used in the industry - industry-specific equipment, switchgear, transformers, aerial conductors, insulators, poles, mobile plant and mobile equipment
- normal and abnormal industry situations, key processes and systems used in the industry - anomalies report, critical system/network failures/anomalies and key processes and systems used in the industry, e.g. maps, drawings, as well as safety and environment processes and practices; communications systems; fires; automatic switching; emergencies; and security breaches
- techniques and processes for responding to a technical enquiry or request in accordance with established procedures in a timely manner - ethical performance; assessing applications, enquiries or requests; using technology and media, including catalogues to assist

- assessments; client quality service; and reflecting on the completed enquiry or request
- enquiries may be internal or with customers encompassing:
 - customer protocols
 - legal requirements and obligations for property access
- relevant heritage and environmental requirements.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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