Australian Government

Assessment Requirements for UETTDRIS50 Coordinate power system permit procedures

Release: 1

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Modification History

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

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
- completing all the following:
  - developing a permit schedule and/or permit issuing procedures
  - facilitating and coordinating the delivery and issuing of permits
- gathering, collating and confirming data on different worksites relevant to:
  - electrical network diagrams for the specific worksite
  - earth permits
  - safe working area
  - work to be carried out in confined space or in hazardous environment
  - specific outsourcing procedures
  - specific hazard identification
  - risk classification and management procedures
  - regulatory requirements, such as WHS/OHS and electrical safety
- completing all the following:
  - receiving and coordinating the cancellation of permits in readiness for restoration
  - conducting audits permit correctness procedures
- conducting at least two (2) of the following:
  - issuing other work permits, such as working in confined space, as required
  - coordinating permits
  - engaging and briefing contractors on electrical and other work permits
- 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:

- coordinating access authority procedures encompassing:
  - specific-enterprise processes, policies and procedures to be followed
  - processes of consultation, negotiation and coordination - clear and concise instructions and information, methods for the encouragement of feedback and contributions of information and ideas, and responsibilities of members of the team
  - techniques in analysing, planning, coordinating and organising work for a safe outcome and according to statutory requirements and regulations
  - techniques in the effective utilisation of available resources
  - techniques in the development of an access authority/permit and/or access authority/permit issuing procedures
  - techniques in facilitating and coordinating the delivery and issuing of access authorities
  - techniques in gathering, collating and confirming data on different worksites - electrical network diagrams for the specific worksite, earth access authorities, safe working area, work to be carried out in confined space or in hazardous environment, specific outsourcing procedures, specific hazard identification, risk classification and management procedures, and regulatory requirements, such as WHS/OHS and electrical safety
  - techniques in the receiving and coordinating the cancellation of access authorities in readiness for restoration
  - methods of conducting audits on correct access authority procedures
  - process of issuing of other access authorities for work permits - working in confined space, as required, coordination of access authorities, and engaging and briefing contractors on electrical and other work
  - issue and receipt of operating agreements
- high voltage (HV) switching principles encompassing:
  - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to switching of HV to a given schedule
  - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of electrical apparatus; use, characteristics and capabilities of specialised tools and testing equipment; and network interconnectors source of possible back-feed
  - role of the HV switching operator
  - operational forms, access authorities and permits associated with HV switching - types of operational forms, access authorities and permits, and purpose and procedures for operational forms, access authorities and permits
  - use and operation of equipment associated with HV overhead and substation equipment - test instruments, sticks, interrupters, arc stranglers
  - types and categories of HV switchgear
  - application, function and operating capabilities of switchgear
  - restrictions pertaining to HV switching equipment
  - procedures for the isolation of HV transmission main and working earths
  - earthing HV electrical apparatus practices and procedures for access - purposes of "operational" and additional work part "on-site" earths, factors determining the location

and effectiveness of operational earthing, acceptable industry procedures, personal protective equipment (PPE) and HV switching techniques
    - operate switching apparatus - identifying hazards, assessing and controlling risks associated with HV switchgear operation, systematic and defensive techniques, mobile radio procedures and double isolation procedures
- HV distribution transformer principles encompassing:
    - operation of HV distribution transformers - principle governing factors for transformer ratings, protection and alarms; operating limitations and the relationship between transformer and HV fuse rating; purpose and principle operation of HV distribution transformer tap changers; HV distribution transformer and transformer - cable combination switching practices; paralleling requirements, isolation and earthing procedures for access; common distribution transformer and associated electrical apparatus faults
    - HV underground switching equipment - arc stranglers, switch operation, load break elbows, switching cubicles, canister fuses, bayonet fuses, F and G switching cubicles, voltage indicators and phasing testers
- HV single wire earth return (SWER) system encompassing:
    - application and function of SWER system components
    - circuit arrangement
    - principle of operation
    - hazards and procedures associated with faulty SWER earth systems
    - procedure to isolate, energise and commission SWER substations
- feeder automation system encompassing:
    - function of feeder automation system and the main components
    - operation procedure for a remote field device from a local control station
    - functions of supervisory control and data acquisition (SCADA) (or any other relevant data acquisition and control) systems and its main components
    - SCADA system security interlocks and access restrictions
    - SCADA system operation when switching apparatus or retrieving data via a remote access device, such as remote access terminal (RAT), dial up voice annunciated system and local control station
    - function of the main components of a local/remote control system
    - operation of a field devices using SCADA systems via a AT, dial up voice annunciated system and local control station
- HV system switching principles, including switching authorisation procedures, encompassing:
    - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to system switching
    - requirements for the use of manuals, system diagrams/plans and drawings
    - types and characteristics of HV systems and equipment to be switched
    - procedures for obtaining correct HV switching authorisation - identification of WHS/OHS hazards, assessing and controlling risks, safety procedures and precautions, safe approach distances (SAD), responsibilities and protocols, identifying switching

resources, procedures for obtaining electrical access permits authorities, requirements for team switching and procedures for coordination of operations
    - techniques in HV system switching - pre-switching checks, switching operational procedures, isolation procedures and proving dead de-energised, earthing procedures, emergency fault procedures and energisation procedures
- LV system switching principles, including switching authorisation procedures, encompassing:
    - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to system switching
    - requirements for the use of manuals, system diagrams/plans and drawings
    - types and characteristics of LV systems and equipment to be switched
    - procedures for obtaining correct LV switching authorisation - identification of WHS/OHS hazards, assessing and controlling risks, safety procedures and precautions, SAD, responsibilities and protocols, identifying switching resources, procedures for obtaining electrical access permits authorities, requirements for team switching and procedures for coordination of operations
    - techniques in LV system switching - isolation procedures and proving dead, earthing procedures, pre-switching checks, switching operational procedures, emergency fault procedures and energisation procedures
- HV overhead and substation switching principles encompassing:
    - legislation, standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to HV overhead and substation switching
    - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of HV electrical equipment to be switched; use, characteristics and capabilities of specialised tools and testing equipment
    - role and responsibilities of the HV switching operator
    - operational forms, access authorities and permits and hazard/risk assessments associated with HV switching - types of operational forms, access authorities and permits and hazard/risk assessments; purpose and procedurse for operational forms, access authorities and hazard/risk assessments
    - use and operation of equipment associated with HV overhead and substation equipment - test instruments, sticks, interrupters and arc stranglers
    - HV switchgear – types, categories, application and operating capabilities
    - operation of HV overhead switching or indicating devices - fuses, disconnect fuses, load switching, live line indicators, capacitors, reclosers, sectionalisers, underslung links, air-breaks switches, disconnects, live line clamps, phasing sticks and phasing tester
    - operation of protection systems and substation equipment - fault levels and settings; types and applications; protection systems and substation equipment fault levels and settings; types and applications
    - restrictions pertaining to HV switching equipment
    - procedures for the isolation of HV mains and working earths - earthing HV electrical apparatus practices and procedures for access authority issuing and HV switching techniques
    - operate switching apparatus - identifying hazards, assessing and controlling risks

associated with HV switchgear operation, systematic and defensive techniques, mobile radio procedures and double isolation procedures

- LV overhead and substation switching principles encompassing:
  - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to low voltage overhead and substation switching
  - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of LV electrical equipment to be switched; use, characteristics and capabilities of specialised tools and testing equipment; and role and responsibilities of the LV switching operator
  - operational forms, access authorities and hazard/risk assessments associated with HV switching - types of operational forms, access authorities and hazard/risk assessments, purpose and procedures for operational forms, access authorities and hazard/risk assessments
  - use and operation of equipment associated with LV overhead and substation equipment - test instruments, sticks, interrupters and arc stranglers
  - LV switchgear – types, categories, application and operating capabilities
  - operation of LV overhead switching or indicating devices - fuses, disconnect fuses, load switching, underslung links, air-break switches, disconnects, live line clamps, phasing sticks and phasing tester
  - operation of protection systems and substation equipment - fault levels and settings; types and applications, protection systems and substation equipment fault levels and settings; types and applications
  - restrictions pertaining to LV switching equipment
  - procedures for the isolation of LV distributions main and working earths
  - earthing LV electrical apparatus practices and procedures for access authority issuing
  - LV switching techniques
  - operate switching apparatus - identifying hazards, assessing and controlling risks associated with LV switchgear operation, systematic and defensive techniques, mobile radio procedures and double isolation procedures
- preparation of a HV switching instruction schedule encompassing:
  - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to switching instruction schedules
  - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of HV electrical equipment to be switched; points of isolation and earthing locations (safety and working earths) and responsibilities of the switching operator
  - techniques in writing switching instructions - sequence of switching operations, isolation procedures, earthing procedures and switching completion notification procedures
- preparation of a LV switching instruction encompassing:
  - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to switching sheet schedules
  - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of LV electrical equipment to be switched; isolation points and earthing; and responsibilities of the switching operator

  - techniques in writing switching schedules - sequence of switching operations, isolation procedures, earthing procedures and switching completion notification procedures
- enterprise-specific policies and procedure instructions encompassing:
  - responsibilities and duty of care of employer and employee relationship
  - methods of obtaining the 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, and complaint and issues procedures
  - overview of enterprise professional development - fire-fighting procedures, fatigue management, and training and competency development - understanding and promotion
- enterprise-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 the 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; responsibility of maintenance, including cleaning, inspection and testing; and 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, and 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 drawings 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
- enterprise-specific switching diagrams and drawings encompassing:
  - types and application of enterprise-specific switching drawings and documents - wiring and schematic diagrams and switching symbols, mechanical drawings dealing with switching operations, project charts, switching schedules, graphs, technical manuals and catalogues, and instruction/worksheets
  - interpretation of different system switching diagrams - LV system switching diagrams, direct current (d.c.) traction supply sectioning diagrams, HV transmission and distribution

system symbols and feeder plans, and processes of updating switching diagrams.

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, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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