



**Australian Government**

**Assessment Requirements for  
UETTDRSB22 Carry out power systems  
substation inspection**

**Release: 1**

# Assessment Requirements for UETTDRSB22 Carry out power systems substation inspection

## 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
- performing substation inspections on at least one (1) of the following:
  - transmission substation
  - distribution substation
  - traction substation
  - zone substation
  - terminal switching stations
- performing substation inspections on all of the following:
  - substation plant and equipment
  - substation environmental systems
  - substation security systems
- performing substation inspection on at least ten (10) of the following:
  - circuit breakers
  - transformers
  - control systems
  - operating mechanism cabinets
  - voltage transformers
  - current transformers
  - surge arrestors
  - capacitor banks
  - static VAR compensator (SVC)
  - synchronous condenser
  - harmonic filters
  - rectifier transformers

- rectifiers
- invertors
- negative reactors
- energy dissipation resistors
- disconnectors/isolators
- earth switches
- fault throwing switches
- sectionalisers
- a.c. and d.c. supply systems
- control room environments
- batteries
- chargers
- proving de-energised equipment
- fire systems equipment
- oil spill equipment
- 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:

- enterprise-specific policies and procedure instructions, including:
  - 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, including:
  - 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 personal protection equipment (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 data management processes, including:
  - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to data management
  - requirements for the use of manuals, substation diagrams/plans and drawings
  - types of enterprise-specific computer software
  - techniques in storing and retrieving data and reports from the computer
  - techniques in using the data management systems in following necessary commands and protocols in accordance with enterprise-specific procedures
  - calculation of results and data measurements using the computer
  - techniques in the preparation of preliminary works creation and closure
- fault conditions and symptoms related to the plant and/or equipment type, including:
  - standards, codes, Commonwealth/state/territory/local government legislation, supply authority regulations and/or enterprise requirements pertaining to typical fault conditions and systems
  - interpretation of faults in operating mechanisms, such as drive trains and mechanical power drives; stored energy systems, including hydraulic systems, pneumatic systems and mechanical storage systems; and accumulators
  - interpretation of faults in electrical control systems, such as electromechanical relay systems, micro-processor-based systems, programmable logic controller (PLC) systems, integrated control systems or combinations of electrical/mechanical systems
  - types of electrical systems, including a.c., d.c. and combinations of both
  - types of fault conditions - failure to operate, failure in service, including the appropriate procedures for work on in service plant/equipment
  - types of symptoms - alarms, relay flags, mechanical defects, insulation deterioration, leaks, overpressure, under pressure, and out of tolerance measurements and checks
- substation equipment components and materials related to the plant and/or equipment type, including:
  - types of components - complete unit of plant and/or equipment; replacement components or appropriate substitutes; their dimensions, suitability and serviceability; also, the components associated with the local control systems of the equipment, including indication of levels, quantities, volumes, pressures and temperatures; and the operating principles of these devices and components
  - types of materials - insulation, construction, fabrication or lubrication of the plant/equipment
  - techniques in enterprise procedures and regulatory/legislative requirements for the handling/use and storage of equipment components and materials which may present

### WHS/OHS hazards to persons in the workplace

- substation safety practices, including:
  - standards, codes, Commonwealth/state/territory/local government legislation, supply authority regulations and/or enterprise requirements pertaining to substation safety practices
  - techniques in the use of protective apparatus and apparel for substations work, including responsibilities with regard to the use and maintenance of protective apparatus and apparel and the types of protective apparatus and apparel used for work in substations
  - requirements for the use of ladders and appropriate ladder types for work in substations - safe work methods when carrying, erecting, collapsing and lowering different types of extension ladder against substation structures, plant and equipment; maintenance checks on different types of ladders; renewal of extension ropes and the safety issues relating to clearances from energised conductors
  - requirements for climbing and working at heights in substations - attached climbing principles; selection, use and operation of elevated work platforms (EWP) and any WHS/OHS requirements associated with the use of EWP
  - control of small fires - identification, selection and operation of the appropriate extinguishing mediums for various types of fires and the precautions for personal protection when fighting small fires
  - control of oil spills - identification, use and maintenance of spill oil control equipment and materials, oil containment facilities and systems
  - rescue and release procedures - rescue procedures of personnel from energised conductors, emergency descent from an EWP and/or confined spaces
  - enterprise requirements - safe access and authorisation to work procedures, use of mobile extendable equipment on or near energised HV conductors and emergency response procedures
  - hazards associated with work in substations, including earthing systems, transfer potentials, step and touch effects, electrostatic and electromagnetic induction, and dangers of near approach to energised conductors.

## 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>