



Australian Government

Assessment Requirements for UEERL0008 Disconnect-reconnect explosion-protected appliances and control devices connected to LV installation

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology 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, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant electrical installations industry standards
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- applying sustainable energy principles and practices
- completing workplace documentation
- dealing with unplanned events/situations in accordance with workplace procedures to minimise risk to personnel and equipment
- determining electrical characteristics of explosion-protected electrical equipment
- disconnecting and reconnecting fixed wired electrical equipment connected to a low voltage (LV) supply
- disconnecting and reconnecting electrical equipment
- disconnecting explosion-protected electrical equipment
- identifying and isolating circuit
- identifying and reporting faults
- identifying faults at point of disconnection and reconnection in accordance with workplace procedures
- identifying point of installation
- inspecting and testing disconnected and reconnected electrical equipment for safe operation
- preparing to disconnect and reconnect electrical equipment
- preparing to disconnect explosion-protected electrical equipment
- preparing to reconnect explosion-protected electrical equipment
- reconnecting explosion-protected electrical equipment
- selecting tools, equipment and testing devices
- testing of the reconnected explosion-protected electrical equipment for safe operation, including polarity and earth continuity
- undertaking visual checks of the explosion-protected electrical equipment and associated wiring to detect and report any abnormal damage or faults.

Knowledge Evidence

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

- hazardous area safe working practices, including:
 - WHS/OHS responsibilities related to hazardous areas: the main features and purpose of a clearance to work (including hot work permit systems) system
 - typical safety procedures that should be followed before entering a hazardous area
 - the purpose of gas detectors and their use and limitations
 - effects of temperature on gas and vapour detection; frequency of monitoring for presence of gas or vapours, i.e. effects of temperature rise; factors affecting the accuracy of gas detectors, for example, contamination, condensation, temperature; and safety in use of gas detectors, for example, read and run concept
 - safety measures to be taken when working in a hazardous area
 - the roles of the parties (including standard bodies and experienced consultants) involved in the safety of hazardous areas: common Acts and regulations related to the safety of hazardous areas and the authorities responsible for their implementation; where assistance and further information can be obtained to assist persons with hazardous area responsibilities: persons with hazardous area responsibilities, including the hazardous area responsibilities of the owner of premises in which a hazardous area exists; the occupier of premises in which a hazardous area exists; enterprises and personnel engaged in installation and/or maintenance of explosion-protection systems; enterprises and personnel engaged in the classification of hazardous areas and/or design of explosion-protection systems; enterprises and personnel engaged in the overhaul, modification and/or assessment of explosion-protected equipment; enterprises and personnel engaged in the inspection of explosion-protection installations; manufacturers of explosion-protected equipment; designated authorities and insurers
- hazardous area and explosion-protection principles, including:
 - properties of combustible substances and their potential to create an explosive hazard; condition in the workplace that will lead to an explosion; the terms combustion, ignition and propagation; explosive range of substances encountered in the workplace i.e. lower explosion limit (LEL)/upper explosion limit (UEL); and explosive parameters of substances as given in tables of substance properties
 - combustible materials, including gases, vapours (from liquids) and dusts; flash point; the difference between gases and vapours; and the toxic nature of gases and vapours and potential harmful consequences
 - the nature of hazardous areas: the standard definition of a hazardous area; the recommended methods for classifying the type and degree of explosion hazard in an area; hazardous area classifications as defined by standards; and factors that are considered when a hazardous area is classified
 - the basics of how explosion-protection is achieved by the methods of exclusion, containment, energy limitation, dilution and avoidance of ignition source
- explosion-protected techniques and principles, including:
 - the principles of each explosion-protection technique, the methods used and how each

- technique works
- how explosion-protected equipment is identified by the Ex symbol marked on the equipment, including old equipment and equipment certified in another country
- visible conditions or actions that would void the explosion-protection provided by a particular technique
- flameproof (Ex ‘d’) explosion-protection technique, including:
 - the purpose and characteristics of the design features of apparatus and circuits protected by the Ex ‘d’ technique (flame paths, integrity under pressure, pressure piling and enclosure entries)
 - typical situations where the Ex ‘d’ explosion-protection technique is used
 - actions or conditions that would void the protection provided by the Ex ‘d’ technique
 - the use of standards in determining the requirements to which the installation of Ex ‘d’ explosion-protected apparatus shall comply
- increased safety (Ex ‘e’) explosion-protection technique, including:
 - the purpose and characteristics of the design features of apparatus and circuits protected by the Ex ‘e’ technique (temperature rise, maximum power dissipation, protection devices, certified components, creepage and clearance distances, absence of sparking contacts and enclosure entries)
 - typical situations where the Ex ‘e’ explosion-protection technique is used
 - actions or conditions that would void the protection provided by the Ex ‘e’ technique
 - the use of standards in determining the requirements to which the installation of Ex ‘e’ explosion-protected apparatus shall comply
- intrinsic safety (Ex ‘i’) explosion-protection technique, including:
 - the purpose and characteristics of the design features of apparatus and circuits protected by the Ex ‘i’ technique (field devices, cables, safe area devices, earthing, entity versus integrated system concept, simple devices and interface devices and their parameters, segregation, infallible components, current and voltage limiting, creepage and clearance distances)
 - typical situations where the Ex ‘i’ explosion-protection technique is used
 - actions or conditions that would void the protection provided by the Ex ‘i’ technique
 - the use of standards in determining the requirements to which the installation of Ex ‘i’ explosion-protected apparatus shall comply
- common characteristics of explosion-protection techniques, including:
 - the purposes of temperature classification and gas grouping/apparatus grouping
 - compliance plate markings
 - limitations of non-metallic or specific alloy enclosures
 - the purpose of conformity and certification/approval for equipment used in hazardous areas
 - environmental conditions that may impact on explosion-protection techniques
 - features and purpose of conduit seals and cable termination devices designed for use in hazardous areas (conduit seals and barrier and compression glands for cables with or without armouring, screening and/or drain wires)
- hazardous areas cable termination devices and applications, including:

- explosion-protection features of cable terminations devices
- selecting compliant cable termination devices
- hazardous areas cable termination techniques, including:
 - installing conduit systems, where applicable, including seals to meet hazardous areas requirements (gases only)
 - terminating a cable with a barrier gland (gases only)
 - terminating a multipair, steel wire armoured (SWA), overall screened and individual screened cable into an enclosure
 - testing termination/connections of installed cables/circuits
- enterprise reporting and recording system, including:
 - purpose and extent of maintaining work activities records in an enterprise
 - types of records for maintaining work activities in an enterprise
 - methods for recording and maintaining work records
 - work records for regulation requirements
 - producing enterprise records and documents for the safe reconnection/commissioning of a component to the supply
- disconnect and reconnect explosion-protected electrical equipment, including:
 - common characteristics of explosion-protection techniques
 - explosion-protected techniques and principles
 - Ex 'd' explosion-protection technique
 - hazardous area and explosion protection principles
 - hazardous areas cable termination devices and applications
 - hazardous areas cable termination techniques
 - Ex 'e' explosion-protection technique
- relevant job safety assessments or risk mitigation processes, including working in hazardous areas and precautions to reduce the likelihood of electrical equipment causing an ignition
- relevant manufacturer specifications
- relevant relationships in an electrical circuit
- relevant testing equipment
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including purpose and extent of maintaining work activities records
- relevant workplace policies and procedures.

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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate 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 simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to disconnecting and reconnecting fixed wired explosion-protected electrical equipment connected to a LV supply
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>