



Australian Government

Assessment Requirements for UEEHA0005 Install explosion-protected equipment and associated apparatus and wiring systems

Release: 1

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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:

- preparing to install, including:
 - reviewing safe work methods associated with the classified area in which the work is to be carried out
 - determining the types and locations of equipment and cabling to be installed from area classification and planning and/or design documentation
 - completing pre-installation checks, including:
 - equipment supplied complies with planning and/or design specifications
 - equipment marking conforms to the certification documentation provided with the equipment
 - cables and cable enclosures to be installed conform to planning and/or design documentation
 - cable glands, seals and conductor terminations are suitable for the cable types and equipment specified
 - serviceability and safety of tools and testing devices needed to carry out the installation work is checked
- installing Ex 'd', Ex 'e', Ex 'i' and Ex 't' equipment and associated apparatus and wiring systems, including:
 - obtaining and applying safe work method statements (SWMS) relating to the work
 - carrying out the installation to requirements, including:
 - removing equipment enclosure covers and internal components and their fixing devices to enable installation and safe storage
 - installing equipment to conform to planning and/or design documentation, installation standards, manufacturer's instructions and limitations
 - installing equipment in a manner that maintains the integrity of the equipment protection type
 - testing circuits before connecting them to ensure:
 - resistance of protective earthing conductors is sufficiently low

- insulation resistance is safe
 - polarity and connections are correct
- replacing internal components and equipment covers previously removed to enable installation
- terminating cables and conduits conforming with installation standards and equipment certification and manufacturer's instructions, including:
 - installing conduit systems, including seals to meet hazardous area requirements (gases and liquids)
 - terminating cables with a barrier gland (gases and liquids)
 - terminating multicore, steel wire armoured (SWA), overall screened and individual screened cable into an enclosure
 - terminating and connecting conductors in accordance with requirements
- replacing equipment internal components and covers ensuring the integrity of the equipment type
- confirming that installation is complete, including:
 - notifying an appropriate person that the installation is completed and ready for the initial inspection
 - taking action to rectify any installation defects revealed by the initial inspection
- forwarding documents used during the installation to the person responsible for compiling the verification dossier.

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:

- safe work procedures for explosive gas atmospheres, including:
 - work health and safety (WHS)/occupational health and safety (OHS) procedures for working in hazardous areas
 - permit to work that covers the hazardous aspects of the specific work and location
- requirements for installing equipment and wiring systems for explosive atmospheres, including:
 - required documentation
 - installation requirements for protection from dangerous (incendive) sparking including:
 - earthing system requirements
 - SELV and PELV systems
 - electrical separation
 - limitation of equipment installed above a hazardous area
 - requirements for potential equalisation for the following:
 - various earthing systems
 - bonding systems

- cable armour and screens
- exposed conductive parts
- metallic enclosures
- temporary bonding
- limitation of cathodic protection
- wiring systems, including:
 - limitation on the use of aluminium conductors
 - fixed cable and wiring systems permitted for Groups I, II and III
 - the wiring systems permitted and not permitted in or above hazardous areas
 - cables supplying transportable and portable equipment
 - flexible connections and flexible cables
- connection to equipment, including:
 - cable glands and blanking elements per enclosure type
 - non-electrical entries
 - conduit systems
 - termination of conductors
 - treatment of unused core
 - unused opening/entries in enclosures
 - joining cables
 - openings in walls
 - passage and collection of flammables
- additional requirements for each type of explosion protection
- cable and conduit termination devices and techniques, including:
 - cable glands, conduits and sealing including:
 - types of glands and components
 - techniques for fitting glands and applying sealing compound
 - techniques for using conduit seals and applying sealing compound
- conductor terminations and techniques, including:
 - installing conduit systems, where applicable, including seals to meet hazardous area requirements (gases and liquids)
 - terminating a cable with a barrier gland (gases and liquids)
 - terminating a multicore, SWA, overall screened and individual screened cable into an enclosure
 - methods for terminating MIMS cable in accordance with manufacturer's instructions
 - testing termination/connections of installed cables/circuits.

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 workplace operational situations that replicate workplace conditions and include:

- an area designated as a hazardous area which is a close facsimile of a real work environment
- an area entry point
- delineation of the area into zones for both gas and dust
- a person to act as the ‘authorised person’ for the site
- a qualified supervisor.

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 tools and testing devices and personal protective equipment (PPE) currently used in industry
- applicable documentation including workplace procedures, safe work methods, verification dossier for the site and planning and/or design documentation specifying:
 - Ex ‘d’, Ex ‘e’, Ex ‘i’ and Ex ‘t’ equipment to be installed
 - cables and cable enclosures to be installed
 - cable glands, seals and conductor terminations.

Links

Companion Volume implementation guides are found in VETNet - -

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