



Australian Government

Assessment Requirements for UEEHA0021 Design explosion-protected electrical systems and installations

Release: 1

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Modification History

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

- establishing the explosion-protection requirements including:
 - determining the scope of the electrical system and installation from reviewing hazardous area classification drawings, process specifications and plant design documentation
 - determining explosion-protection requirements by reviewing the standards with which the installation is required to comply
- incorporating the explosion-protection requirements in the design including:
 - locating equipment in non-hazardous areas if possible and providing ease of access for inspection and maintenance
 - incorporating the ability to obtain the required degree of protection for operational safety
 - applying relevant engineering disciplines to ensure parameters for each equipment type, equipment group, equipment temperature class and cables are compliant and correctly specified
 - specifying equipment for the explosive atmosphere, zone and external influences in the locations where they are to be installed
 - specifying wiring systems (cables, supports, enclosures) relevant to the atmosphere, zones and external influences along the routes where they are to be installed
- documenting and finalising the design including:
 - checking the design for compliance with the requirements established for the electrical system and installation
 - documenting the explosion-protection aspects of the design to include specification of all explosion-protected equipment and wiring systems, equipment location and cable route drawings and compliance documents for each item of explosion-protected equipment
 - submitting the design to the relevant parties for approval
 - including approved copies of the design in 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 and performance criteria and include knowledge of:

- design aspects of electrical installation for hazardous area equipment including:
 - location of explosion-protected equipment
 - electrical rating and characteristics of equipment
 - providing ease of access for inspection and maintenance
 - means of obtaining the required degree of operational safety
 - documentation (additional to that required for a non-hazardous area) to be included in the verification dossier
 - assurance of conformity of equipment including:
 - equipment with acceptable certification
 - equipment without acceptable required certification
 - repaired, second-hand or existing equipment
- explosion-protected requirements including:
 - explosive atmosphere electrical installation design and selection of equipment including:
 - general requirements
 - information required for selecting explosion-protected equipment
 - procedure for selection of repaired or existing equipment
 - selection of equipment
 - protection from dangerous incendive sparking
 - electrical protection
 - emergency switch-off and electrical isolation
 - wiring systems
 - additional requirements for each type of protection including determination of required parameters
 - verification of intrinsically safe circuits
 - method for determining maximum safety parameters for intrinsically safe circuits
 - equipment protection levels (EPLs) as an alternative method for the selection of equipment.

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.

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 PPE currently used in industry
- applicable documentation including:
 - hazardous area classification drawings
 - process specifications
 - plant design documentation
 - relevant standards and codes
- relevant technical data from manufacturers of explosion-protected equipment.

Links

Companion Volume Implementation Guides are found in VETNet -

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