



Australian Government

**Assessment Requirements for RIIRAI609D
Establish and maintain electrical
installations, reticulation and protection
system**

Release: 3

Assessment Requirements for RIIRAI609D Establish and maintain electrical installations, reticulation and protection system

Modification History

Release	Comment
1	This unit replaces RIIQAI609A Establish and maintain electrical installations, reticulation and protection system
2	Plan and Prepare element added.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- implements procedures and techniques for the safe, effective and efficient completion of the establishing and maintenance of mine electrical installations, reticulation and protection systems including:
 - accessing, interpreting and applying legislative, organisation and site requirements and procedures
 - accessing, interpreting and applying:
 - technical information
 - records and reports
 - applying the principles of electrical installations, reticulation, control and protection system theory
 - applying procedures for the evaluation of designs and installations of electrical installations, reticulation, control and protection systems at a mine in terms of safety requirements
 - applying risk management processes for the risks associated with and consequences of failure of electrical installations, reticulation, control and protection systems at a mine

- applying risk management processes for the risks associated with and consequences of changes to electrical installations, reticulation, control and protection systems at a mine
- applying development procedures, for the management, operation, testing and maintenance of the mines electrical installations, reticulation, control and protection systems
- applying procedures for the planning, coordination and documentation of work on the mines electrical installations, reticulation, control and protection systems
- applying training needs analysis
- works effectively with others to establish and maintain mine electrical installations, reticulation and protection systems including:
 - managing people and processes
 - resolving conflict
 - coordinating human, financial and physical resources
 - developing, initiating and administering work plans
 - interpreting and applying operational performance data
 - engaging internal and external stakeholders
- demonstrates completion of the establishing and maintenance of mine electrical installations, reticulation and protection systems that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - identifying the relevant information and scope of the work
 - identifying the full range of specification requirements
 - identifying all aspects of mine power supply systems
 - identifying options for power supply systems, electrical protection systems, and cables from power source to point of usage

Knowledge Evidence

The candidate must demonstrate knowledge of the in establishing and maintaining electrical installations, reticulation and protection systems through:

- legislative, organisation and site requirements and procedures for;
 - inspections and reporting
 - hazards associated with high energy systems in mining
- electrical protection theory, including earthing systems, coordination and fault level calculations, step and touch potential management
- fault discrimination and fault clearance characteristics of equipment
- mining electrical protection systems, including earth continuity monitoring, earth leakage protection, earth fault current limitation and relevant standards
- typical low and high voltage switching and distribution systems on mines
- transient over-voltages, harmonics and lightning theory, hazards and protection schemes

- mining cables, faults and consequences, cable protection systems, standards and cable repair
- classification of hazardous areas and explosion-protected electrical equipment principles, general requirements, verification, testing and standards
- automatic control system hazards, protection schemes and standards
- electromagnetic interference hazards, protection schemes and standards
- management and control of processes for change to software and hard wired based systems
- electromagnetic interference hazards, protection schemes and standards
- radio remote control systems hazards, protection schemes and standards
- safety protective devices associated with welding machines such as Voltage Reducing Devices
- the principles of electrical installations, reticulation, control and protection system theory
- the risks associated with and consequences of failure of electrical installations, reticulation, control and protection systems at a mine
- the risks associated with and consequences of changes to electrical installations, reticulation, control and protection systems at a mine

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>