Australian Government

Department of Education, Employment and Workplace Relations

UEENEEM028A Maintain equipment in hazardous areas - gas atmospheres

Release: 1

UEENEEM028A Maintain equipment in hazardous areas - gas atmospheres

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor **1**)

1.1) Descriptor

This unit covers the explosion-protection aspects for maintaining explosion-protected and associated equipment and wiring systems. It requires the ability to follow a maintenance program, work safely, carry out maintenance to Standards and manufacturer instructions and complete the necessary maintenance documentation.

This unit is directly equivalent to the Unit *2.7 Maintain equipment in hazardous areas* in the Australian/New Zealand Standard *AS/NZS 4761.1 Competencies for working with electrical equipment for hazardous areas* (*EEHA*) *Part 1*: *Competency Standards*. Equivalence includes endorsement in the explosion-protection techniques listed in the Range statement of this unit.

Application of the Unit

Application of the Unit **4**)

This unit augments other formally-acquired competencies in a relevant industry and shall be used only in conjunction such competencies. It applies to electrical, instrumentation, electronics and data communication maintenance job functions at AQF 3 or higher. It is suitable for employment-based programs under an approved contract of training.

Note:

Examples of relevant industries include aviations, electrical installation and maintenance, fuel storage and dispensing industrial process, instrumentation and control,

Application of the Unit **4)**

marine, material handling and storage, mining, and petrochemical.

Licensing/Regulatory Information

1.2) License to practice

The skills and knowledge described in this unit require a license to practice in the workplace where plant and equipment operate at voltage above 50 V a.c. or 120 V d.c. Other conditions related to communications, electrical work, fire protection, gas work, high voltage work, refrigeration/air conditioning and security may apply in some jurisdictions subject to regulations. Practice in the workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Pre-Requisites

Prerequisite Unit(s) **2)**

2.1) Competencies

Granting competency in this unit shall be made after or concurrently with confirming competency in any one of the following units.

UEENEEM080A Report on the integrity of explosion-protected equipment in a hazardous areas

AND

Competencies in maintenance of general low-voltage or extra-low voltage electrical/electronic equipment and wiring systems at AQF 3 or equivalent. Examples are (but not limited to):

UEENEEG005B Verify compliance and functionality of general electrical installations

UEENEEH018B Find and repair faults in electronic apparatus

UEENEEI012B Verify compliance and functionality of process control installations

Prerequisite Unit(s) **2)**

UEENEEF011B Test, report and rectify faults in voice and data installations

For the full prerequisite chain details for this unit please refer to Table 2 in Volume 1, Part 2

Employability Skills Information

Employability Skills **3)**

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare to carry out maintenance.	1.1 OHS policies and procedures for preparing to work in a hazardous area are followed.
	1.2 Area classification and details of explosion-protected equipment and wiring are ascertained from hazardous area layout drawings and equipment certification documents held in hazardous area verification dossier.
	1.3 Extent of maintenance to be conducted is established from the maintenance schedule and reports held in hazardous area verification

ELEMENT	PERFORMANCE CRITERIA	
		dossier.
	1.4	Special tools, equipment and testing devices needed to carry out the maintenance work are obtained and checked for correct operation and safety.
2 Carry out maintenance.	2.1	OHS policies and procedures for working in a hazardous area are followed.
	2.2	Work is carried out to plan schedule to ensure all items are correctly maintained.
	2.3	Equipment is checked and tested in accordance with established procedures to determine whether it functions correctly, complies with approval documentation and is not subject to deterioration or damage.
	2.4	Equipment is adjusted or repaired within the limits permitted by the equipment certification and in accordance with manufacturer instructions.
	2.5	Certification documentation for replacement equipment is sighted to ensure that it is identical to the equipment it replaces and is in accordance with the explosion-protection system design.
	2.6	Circuits of equipment being withdrawn from service are terminated or isolated safely and in the manner approved for the classification of the area.
	2.7	Flexible cables and cords are examined and removed from service if they are not in immediate use or are found to be defective or damaged.
	2.8	Spare equipment, flexible cables and cords are maintained and suitably stored where they are not likely to suffer deterioration or damage.

ELEMENT	PERFORMANCE CRITERIA
3 Complete maintenance work inspections and documentation.	3.1 Detailed inspection of explosion-protected equipment and systems subject to the maintenance work is arranged in accordance with established procedures and requirements.
	3.2 Results of inspections and maintenance activities are recorded in accordance with established procedures and requirements.
	3.3 Appropriate personnel are notified of the completion of maintenance and details are documented in accordance with established procedures and requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and installing and maintaining integrity of fixed gas detection equipment.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

2.22.2.2 Explosion-protected equipment Ex certification schemes

2.22.3 Flameproof (Ex'd') explosion-protection technique

2.22.4 Increased safety (Ex'e') explosion-protection technique

2.22.5 Non-sparking (Ex'n') explosion-protection technique

2.22.6 Intrinsic safety (Ex'i') explosion-protection technique

REQUIRED SKILLS AND KNOWLEDGE

2.22.7 Pressurization (Ex'p') explosion-protection technique

2.22.8 Explosion-protection techniques for dusts

2.22.9 Common characteristics of explosion-protection techniques

2.22.10.1 Hazardous areas installation requirements

2.22.10.2 Hazardous areas maintenance requirements

2.22.11.1 Hazardous areas cable termination devices and applications

2.22.11.2 Hazardous areas cable termination techniques

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit and must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all components parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work influence decisions about how/how much the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment

EVIDENCE GUIDE

Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria must be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
  - Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement
  - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
  - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
  - Demonstrate an appropriate level of skills enabling employment
  - Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
  - Maintain equipment in hazardous areas as described in 8) and including:

    A Working safely in a potentially hazardous area or confined space including the use of work permits and clearances, hazard monitoring and evacuation procedures and plant and electrical isolation

    B Identifying defects and faults.

EVIDENCE GUIDE

C Interpreting certification documentation in relation to maintenance, repair and replacement

D Following established maintenance procedures.

E Documenting maintenance details.

F Applying relevant contingency management skills.

Context of and specific resources for assessment

9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should also be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to maintaining equipment in hazardous areas.

Method of assessment

9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment primarily intended for learning/assessment which incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and

9.5)

For optimisation of training and assessment effort, competency

EVIDENCE GUIDE

relationship with other units	development in this unit may be arranged concurrently with unit: UEENEEM080A Report on the integrity of explosion-protected equipment in a hazardous area Competencies in installation of general low-voltage or extra-low voltage electrical/electronic equipment and wiring systems at AQF 3 or equivalent chosen as a prerequisite.

Range Statement

RANGE STATEMENT

8) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to any classified gas hazardous area and all the following explosion-protection techniques:

- Flameproof, (Ex 'd')
- Increased safety, (Ex 'e')
- Intrinsic safety, (Ex 'i')
- Non-sparking, (Ex 'n')

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not Applicable

Competency Field

2.2) Literacy and numeracy skills

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading	3	Writing	3	Numeracy	3

2.2) Literacy and numeracy skills

Competency Field **5**)

Hazards