



Australian Government

**UEENEEM043A Conduct detailed
inspection of hazardous areas installations -
coal mining**

Release: 1

UEENEEM043A Conduct detailed inspection of hazardous areas installations - coal mining

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

1.1) Descriptor

This unit covers the explosion-protection aspects of conducting initial, periodic and sample audit inspections close and detailed inspections of explosion-protected equipment and installations. It requires the ability to use a verification dossier, work safely in a hazardous area, inspect against Standards and report and act on inspection results.

This unit is directly equivalent to the Unit 2.12 *Conduct detailed inspection of hazardous areas installations* 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, installation, maintenance and/or inspection job functions. It is suitable for employment-based programs under an approved contract of training.

Note:

Examples of relevant industries include aviations,

Application of the Unit 4)

electrical installation and maintenance, fuel storage and dispensing industrial process, instrumentation and control, 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. However other conditions may apply in some jurisdictions subject to regulations related to electrical work. 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.

Note:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control and lifting equipment. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.
2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting and risk safety measures.

Pre-Requisites

Prerequisite Unit(s) 2)

2.1) Competencies

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

UEENEEM023A Install explosion-protected
equipment and wiring systems coal mining

OR

UEENEEM027A Maintain equipment in hazardous

Prerequisite Unit(s)

2)

areas coal mining

OR

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

AND

UEENEEM054A Plan electrical installations for hazardous areas)

OR

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

AND

UEENEEM023B Conduct compliance inspection of electrical installations with demand exceeding 100 A per phase)

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

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare for inspection.	1.1 Type and grade of inspection is ascertained from the inspection schedule retained in the verification dossier.
	1.2 Areas classification is ascertained from hazardous areas layout drawings retained in the verification dossier.
	1.3 Type and intended location of each item of equipment and circuits subject to inspection are determined from design drawings and documentation.
	1.4 OHS policies and procedures for preparing to work in a hazardous area are followed.
	1.5 Special tools, equipment and devices needed for the inspection are obtained and checked for correct operation and safety.
2 Conduct inspection	3.1 OHS policies and procedure for working in a hazardous area are followed.
	3.2 Where applicable, an appropriately qualified person is directed to access equipment to facilitate the inspection.
	3.3 Parts of equipment that are dismantled in order to conduct inspection are stored to protect them against loss or damage.
	3.4 Equipment, systems and installation are inspected for compliance with the design specifications retained in the verification dossier and in accordance with requirements.
	3.5 Where applicable, after the inspection of each item, equipment parts and circuit connections are replaced in a manner that ensures the integrity of the explosion-protection system.

ELEMENT	PERFORMANCE CRITERIA
4 Report inspection results	4.1 Any non-conformances, faults or unauthorised modifications are documented in accordance with established procedures.
	4.2 Where applicable, a non-conformance report, including the actions taken and a statement on whether circuits have been re-energised, is made and forwarded to the appropriate personnel.
	4.3 Documentation in relation to all aspects of the inspection is forwarded to the appropriate personnel for inclusion in the verification dossier in accordance with 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 conducting detailed inspection of hazardous areas installations.

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-protection 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:
 - Conduct detailed inspection of hazardous areas installations as described in 8) and including:
 - A Working safely in a hazardous area in relation to work permits and clearances, hazard monitoring and evacuation procedures, and plant and electrical isolation.
 - B Determining the extent of the inspection and location of equipment.

EVIDENCE GUIDE

- C Conducting close and detailed inspections in accordance with requirements and procedures.
- D Ensuring appropriate handling of dismantled parts of equipment.
- E Ensuring replacement of equipment parts and connections that maintain the integrity of the explosion-protection system at the completion of each inspection.
- F Documenting inspection outcomes
- G Applying relevant contingency management skills.

Note:

Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence shall be clearly identified.

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 conducting detailed inspection of hazardous areas installations.

EVIDENCE GUIDE

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 relationship with other units

9.5)

For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with any of the following:

NEENEEM023B Conduct compliance inspection of electrical installations with demand exceeding 100 A per phase

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

UEENEEM023A Install explosion-protected equipment and wiring systems coal mining

UEENEEM027A Maintain equipment in hazardous areas coal mining

UEENEEM054A Plan electrical installations for hazardous areas

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 hazardous area of coal mining and all the following explosion-protection techniques:

- Flameproof, (Ex 'dI')
- Increased safety, (Ex 'eI')
- Intrinsic safety, (Ex 'iI')
- Pressurization, (Ex 'p')
- Protection by enclosure-dusts, (Ex 't')

Note: 'I' signifies Group I equipment

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 4 Writing 4 Numeracy 4

2.2) Literacy and numeracy skills

Competency Field 5)

Hazards