



Australian Government

Department of Education, Employment and Workplace Relations

MEM24011B Establish non-destructive tests

Release: 1

MEM24011B Establish non-destructive tests

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers researching, analysing, developing, approving and evaluating non-destructive tests (NDT).
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Application of the Unit

Application of the unit	This unit applies to research, development, approval and evaluation of applicable non-destructive tests on fabrications, structures and components across a wide range of industries to Level 3 (AS 3669 and AS 3998) or equivalent. The work can relate to scheduled and unscheduled maintenance activities using general tools and specific testing equipment, test development procedures or guidelines. Activities should replicate 'in-service' tasks due to the high level of self-supervision and the critical nature of the work. Actual and potential defects are considered, together with ongoing abnormalities in fabrications, components, structures from a wide range of applications by the selection of relevant testing method. Tests are validated/evaluated on critical component or structural zones. All testing must be developed and completed with particular attention to personal safety and OH&S regulations. Certification against Australian standards may be achieved where assessment in this unit of competency is carried out in conjunction with an examining authority as described in ISO 9712. Materials and chemicals which are subject to codes and regulations - for example, chemicals, explosives, solvents, dangerous materials, acids, or noxious waste products - are subject to safe work habits and must be stored and used in accordance with safe work practices. This unit should not be selected when Unit MEM05025C (Perform welding fabrication inspection) has already been selected. Band: B Unit Weight: 12
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM13013B	Work safely with ionizing radiation
	MEM16010A	Write reports
	MEM18001C	Use hand tools
	MEM24002B	Perform penetrant testing
	MEM24004B	Perform magnetic particle testing
	MEM24006B	Perform eddy current testing
	MEM24008B	Perform ultrasonic testing
	MEM24010B	Perform radiographic testing
	MEM24012C	Apply metallurgy principles

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Assess requirements for non-destructive test	1.1. Inspection area is assessed for testing and all possible failure sites are identified utilising metallurgical analysis. 1.2. Relevant information for test development is collected from available sources using accepted techniques. 1.3. Information is analysed and interpreted. 1.4. Test requirements are determined.
2. Establish non-destructive test techniques and procedures	2.1. Test methods, techniques and procedures to be used for specific NDT work are designated. 2.2. Codes, standards, specifications and procedures are interpreted. 2.3. Test procedures are developed in accordance with established techniques and metallurgical principles.
3. Validate/confirm non-destructive tests	3.1. General and specific test procedures are validated in accordance with established techniques. 3.2. Inspection results are interpreted and evaluated in terms of existing codes, standards and specifications.
4. Approve non-destructive test procedures	4.1. Procedures are approved in accordance with workplace procedures and relevant codes and standards. 4.2. Procedures are documented and distributed in accordance with workplace requirements and relevant codes and standards.
5. Evaluate non-destructive test procedures	5.1. Procedures are evaluated for effectiveness. 5.2. Evaluation results are documented and reported according to workplace requirements. 5.3. Changes/amendments to non-destructive test procedures are made and distributed as necessary.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

REQUIRED SKILLS AND KNOWLEDGE**Required skills**

Look for evidence that confirms skills in:

- conducting metallurgical assessment of inspection areas
- designating most appropriate method, technique or procedure
- referencing information
- developing and validating test procedures
- applying safety procedures, standard operating procedures and legislative requirements to all work
- reading/interpreting/applying relative testing standards
- reading/interpreting/applying relative conformance standards
- documenting procedure and results

Required knowledge

Look for evidence that confirms knowledge of:

- application of metallurgical analysis to assess inspection areas
- NDT methods, techniques and procedures
- meaning and validity of relevant codes, standards, specifications and procedures
- test procedure for testing techniques and specimen
- validation processes
- process for approval of procedures
- process for documentation/distribution of procedures
- evaluation procedures
- process for documentation of evaluation results
- process for amending tests and distributing amendments
- any applicable industry standards, national/Australian standards, NOHSC guides, State/Territory regulatory codes of practice/standards
- use and application of personal protective equipment
- safe work practices and procedures
- relevant hazards and control measures related to the competency

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to establish non-destructive tests. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with the research, analysis, development, approval and evaluation of non-destructive tests, or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE**Guidance information for
assessment****Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Non-destructive testing
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