



Australian Government

Assessment Requirements for MEM24017 Perform visual testing to non-destructive testing standards

Release: 1

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Modification History

Release 1. New unit.

Performance Evidence

There must be evidence the candidate has demonstrated the ability to:

- prepare the testing area for visual inspection
- comply with workplace procedures and WHS requirements at all times during visual testing
- correctly identify material part or area for visual inspection
- clean and prepare materials for visual inspection
- visually inspect welds and weld joints in ferrous and nonferrous metals including:
 - inspect weld joint preparation
 - conduct visual tests during multi-run welding
 - visually test finished welds
 - visually test welds after heat treatment
- correctly operate lenses and magnifiers
- correctly operate cameras and video equipment
- correctly identify defects and irregularities including:
 - defect type and position
 - defect size
 - defect shape.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- standards and codes relevant to non-destructive testing (NDT)
- applications and limitations of visual NDT
- electromagnetic spectrum and standard names for wavelength ranges
- the physical principles and physics of light including:
 - visible wavelengths
 - natural and artificial sources of light
 - advantages and disadvantages for visual testing of different sources of artificial light
- optical characteristics relevant to visual testing including:
 - light polarisation

- stroboscopic effects
- dispersion
- refraction and refraction index
- reflection
- absorption
- fluorescence
- range and limits of natural eye vision
- potential effects of environmental conditions on visual testing
- potential impact on visual testing of eye condition and disorders
- lighting techniques to aid accuracy of visual testing
- camera and photo sensor operation principles
- material attributes and conditions that may affect a visual test
- welding processes and positions
- weld joint preparation faults including:
 - incorrect joint shape, dimension and assembly
 - fusion faces and adjacent surfaces not clean
 - incorrect surface treatment
- weld faults detectable through visual testing including:
 - visible cracks and cavities
 - incorrect depth and shape of gouging
 - poor slag removal
 - arc strikes, tool impressions and other surface defects
 - incorrect weld profile and dimensions
 - weld root and surface defects
- NDT standards and codes test report requirements.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing visual testing to NDT standards at least to the level being assessed
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- There must be access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.

- 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.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>