



Australian Government

MEM05076 Perform welding supervision

Release: 1

MEM05076 Perform welding supervision

Modification History

Release 1. Changes to prerequisites. Supersedes and is not equivalent to MEM05024 Perform welding supervision.

Application

This unit of competency has been developed for post trade engineering fabrication training and the recognition of post trade skills in welding supervision.

It defines the skills and knowledge required to perform welding supervision, develop and qualify welding procedure specifications (WPS), maintain welding related records for fabrication enterprises and projects, instruct and qualify welders in accordance with WPS, and maintain quality and safety procedures related to welding as defined in the unit in conjunction with its prerequisites.

Competency in this unit is based on broad knowledge of welding science, processes, procedures, and technical requirements. Individuals working in this field hold at least one certificate satisfying the requirements of AS 1796 Certification of welders and welding supervisors, AS 2214, or equivalent.

The supervision, training and qualification of welders in welding procedures are defined by recognised codes and standards such as AS 2214 Certification of welding supervisors - Structural steel welding and AS 1796 Certification of welders and welding supervisors, or equivalent national or international codes and standards.

Where skills and knowledge for establishing and maintaining weld record management systems are required, the unit MEM05064 Establish and maintain a weld record management system must also be selected.

Where skills and knowledge for establishing and maintaining welding procedure management systems are required, the unit MEM05067 Establish and maintain a welding procedure management system must also be selected.

This unit must be selected in combination with one of the MEM coded welding units and their prerequisites. These units include:

MEM05060 Perform welds to code standards using submerged arc welding process

MEM05079 Perform welds to code standards using flux core arc welding process

MEM05080 Perform welds to code standards using gas metal arc welding process

MEM05081 Perform welds to code standards using gas tungsten arc welding process

MEM05082 Perform pipe welds to code standards using manual metal arc welding process

MEM05083 Perform welds to code standards using manual metal arc welding process

MEM05088 Perform welds to code standards using oxy fuel gas welding process.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: B

Unit Weight: 10

Pre-requisite Unit

MEM05061 Apply basic metallurgy principles to welding applications

MEM05062 Apply welding and welding related codes and standards

MEM05065 Maintain weld records

MEM05066 Develop and maintain weld procedures

MEM05068 Apply welding procedure specifications

MEM05078 Apply welding principles

MEM05085 Select welding processes

MEM09002 Interpret technical drawing

MEM11011 Undertake manual handling

MEM12023 Perform engineering measurements

MEM12024 Perform computations

MEM13015 Work safely and effectively in manufacturing and engineering

MEM14006 Plan work activities

MEM16006 Organise and communicate information

Competency Field

Fabrication

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Determine welding supervision job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify welding supervision job requirements from specifications, drawings, job sheets or work instructions
2. Select or develop WPS	2.1 Review welding requirements and relevant standards and codes and determine if a new WPS or previously approved WPS is required

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	2.2 Develop weld procedure specifications in accordance with SOPs 2.3 Plan variables and sequence checks against documentation 2.4 Qualify WPS in accordance with relevant standards or codes 2.5 Prepare documentation for record keeping
3. Qualify welders to required welding procedure specifications	3.1 Establish if welders are prequalified against WPS 3.2 Train welders where required in relevant weld processes, parameters and SOPs 3.3 Qualify welders in accordance with relevant WPS 3.4 Ensure welder qualification reports are maintained against WPS
4. Monitor and maintain welding related quality assurance and safety procedures	4.1 Supervise welding operations including developing sampling and weld testing plans 4.2 Monitor welding operations compliance with internal quality assurance plan 4.3 Ensure traceability of materials is maintained 4.4 Supervise welding operations for compliance with SOPs, prescribed specifications and safety procedures 4.5 Verify and arrange for all welding equipment, welding instruments and test equipment to be calibrated and in date
5. Arrange for non-destructive testing and destructive testing	5.1 Arrange weld tests appropriate to weld procedure 5.2 Verify non-destructive tests (NDTs) and/or destructive tests have been completed in accordance with job requirements and specifications and reports received
6. Supervise welding related record keeping	6.1 Ensure records of qualified WPS and pre-qualifying welding procedures are kept 6.2 Ensure welder qualification records are established and maintained 6.3 Supervise weld traceability register including mapping against jobs and projects 6.4 Ensure registers of NDT requests and reports are maintained 6.5 Ensure record keeping activities are consistent with internal quality assurance plan

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Standards and codes include Australian or international standards and codes covering the following:	- welding processes - welding consumables - materials used in fabrication related projects or products - destructive and non-destructive testing of welds - qualifying of welders, welding inspectors and welding supervisors.
NDTs include one or more of the following:	- visual inspection - dye penetrant - magnetic particle - radiographic - ultrasound.
WPS format includes one or more of the following:	- electronic - paper-based/
Qualify WPS:	qualify the weld procedure specification means the arrangement by the welding supervisor for testing of the preliminary WPS through the production of test welds by welders which are then tested by an accredited testing agency against the specified standard. The results are recorded in a welding procedure qualification record (WPQR).
Welding procedure parameters include one or more of the following:	- material specification and grade - material preparation - joint details - position - run sequence and pass number - welding process - filler material - material diameter - current - voltage

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- polarity
- wire feed speed
- travel speed
- pre and post heat input.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM05076 Perform welding supervision

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability to:

- follow work instructions, standard operating procedures (SOPs) and safe work practices
- review required welding for an enterprise or at least two welding projects and determine the scope of welding supervision required
- instruct welders and determine welding parameters in accordance with welding procedure specifications (WPS) on at least two occasions
- qualify welders by training and testing against relevant procedures on at least two occasions
- ensure materials can be traced to their source and a traceability register is maintained
- monitor internal quality assurance plan and safety procedures
- arrange for non-destructive tests (NDTs) and/or destructive tests appropriate to weld procedure and verify results against specifications
- supervise all welding related record keeping and ensuring consistency with internal quality assurance plan.

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

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe welding practices and procedures and use of personal protective equipment (PPE)
- welding metallurgy including principles and effects of heat treatment
- welding terminology and symbols
- application of welding standards and codes relevant to welding supervision including AS1796, AS 2214 or equivalent national and international standards and codes
- welding processes and parameters and relationship to weld quality
- weld discontinuities and relationship to weld quality
- welding procedures defined by code and technical requirements
- NDT methods and application associated with welding.
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Assessment Conditions

- Assessors must:
- have vocational competency in performing welding supervision at least to the level being assessed with relevant industry knowledge and experience
 - 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.
 - Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.
- Knowledge assessment may be either verbal or written but must adequately reflect the knowledge requirements of the unit in a functioning workplace.
- Conditions for assessment must include 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.
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