



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **PMBWELD306B Design polyethylene plastic pressure pipelines**

**Revision Number: 1**

## **PMBWELD306B Design polyethylene plastic pressure pipelines**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit descriptor**

This competency covers the design of relevant elements of polyethylene (PE) plastic pressure pipes and pipeline components under industrial conditions in the field.

This competency is performed by operators as part of a work team.

### **Application of the Unit**

#### **Application of this unit**

This competency applies to operators who are involved in the design of relevant elements of polyethylene (PE) plastic pressure pipes, and pipeline components to quality assurance requirements whilst maintaining personal and immediate site safety.

The key features in attaining the required quality are:

- identify materials being used in the installation as being suitable for specific applications
- determine the appropriate products from relevant National Standards for the specific applications
- assess quality of completed installations by determining appropriate testing and commissioning procedures.

End applications include pipelines used for transmitting gas and liquids.

### **Licensing/Regulatory Information**

Not applicable.

## Pre-Requisites

### Prerequisites

This unit has the prerequisite of *PMBWELD305B Install polyethylene plastic pressure pipelines*.

## Employability Skills Information

### Employability Skills

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
Elements describe the essential outcomes of a unit of competency	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

<b>ELEMENT</b> ELEMENT	<b>PERFORMANCE CRITERIA</b> Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
1. Identify PE pipe materials as being suitable for specific pressure applications.	1.1 Identify materials as PE grades from national standards, job specifications and work site instructions. 1.2 Determine PE materials properties from national standards and material data sheets. 1.3 Identify job needs from work site instructions and specifications.
2. Determine appropriate products from national standards.	2.1 Identify material options from national standards, supplier data sheets, and government codes and regulations. 2.2 Identify material option performance limitations. 2.3 Perform material selection contrasting specific job needs and product properties. 2.4 Prepare field operational sheets.
3. Assess quality of completed installation by determining appropriate testing and commissioning procedures.	3.1 Determine specific installation test requirements. 3.2 Identify alternative test procedures to meet requirements.

## Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit. Knowledge and understanding of PE materials and pipeline components as described in national standards to recognise suitability for specific application, and to establish work instructions.

Knowledge of detailed work instructions necessary to determine detailed work instructions and to implement requirements to attain required quality outcomes.

Knowledge as a basis for solving processing and material problems including:

- identify types of materials and components being used
- establish specific job needs
- establish product selection
- set up and maintain safe working environment
- establish installation requirements
- identify and rectify fault causes arising from application and component variability
- establish completion test requirements
- establish and maintain quality records.

### Language, literacy and numeracy requirements

Read material which is sequenced for instructions, explanations, information or opinions.

Write short and simple messages about routine tasks or activities, or complete forms.

Use hands-on real-life materials and pictures/diagrams based on personal experience and prior knowledge.

Use several pieces of related mathematical information.

Read, write and speak whole numbers and money sums, recognise and interpret simple fractions, decimals and percentages, use simple data, grid references.

Use simple grammatical forms and vocabulary to give instructions, give explanations, ask questions and express viewpoints.

Clarify intended meaning by asking for repetition when listening, and varying speed and changing tone or emphasis when speaking.

Use strategies such as providing verbal and non-verbal feedback in order to show interest or attitude.

## Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the assessment guidelines for this training package.

### Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

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

It is essential that the design meets the requirements of the standard.

### **Assessment method and context**

Assessment will occur using industrial PE pipes, components and equipment and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- using an appropriate, industrial equipment, situations and polymers
- in a situation allowing for the generation of evidence of the ability to recognise, anticipate and respond to problems
  - by using a suitable simulation and/or a range of case studies/scenarios
  - through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

### **Specific resources for assessment**

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required.

Where applicable, physical resources should include equipment modified for people with disabilities.

## **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. Add any 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.

Where reference is made to industry codes of practice and/or Australian/international standards, the latest version must be used.

### **Context**

This competency unit includes the design of relevant elements of polyethylene (PE) pressure pipeline components. The end applications include pipelines used for transmission of gaseous and water based fluids.

### **Procedures**

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards. These may include:

- AS/NZS 4129
- AS/NZS 4130
- AS/NZS 2566

- AS/NZS 2033.

### **Tools and equipment**

This competency includes use of equipment and tools such as:

- measurement devices, including pressure gauges, timers, temperature probes, calipers and computer based monitors
- calculators
- relevant safety equipment
- comprehensive work instructions.

### **Hazards**

Typical hazards include:

- hazardous cleaning fluids
- pipe material handling
- heavy stationary and moving machinery, cutting and heating components.

### **Problems**

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical process and product problems may include:

- variable PE materials, and pipes as supplied
- variable field site conditions
- limitations in available data on specific job requirements.
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### **Unit Sector(s)**

Not applicable.