



Australian Government

UEGNSG200 Conduct butt fusion of large diameter polyethylene gas pipeline systems

Release: 1

UEGNSG200 Conduct butt fusion of large diameter polyethylene gas pipeline systems

Modification History

Release 1. This is the first release of this unit of competency in the UEG Gas Industry Training Package.

Application

This unit involves the skills and knowledge required to butt fuse large diameter polyethylene gas pipeline systems.

It includes preparing to weld polyethylene pipe, handling, jointing, constructing and welding polyethylene gas distribution mains. It also includes gas distribution, gathering lines, secondary mains (high pressure) and gas transmission line work and completing relevant documentation.

This unit applies to large polyethylene pipe diameter greater than 180 mm.

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

Pre-requisite Unit

Not applicable.

Competency Field

Gas Distribution

Unit Sector

Gas Industry

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to weld polyethylene pipe

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Job requirements and workplace procedures for the site are discussed with relevant persons
- 1.2** Work health and safety (WHS)/occupational health and

		safety (OHS) workplace procedures and environmental and sustainable measures for the site are identified, obtained and applied
	1.3	Scope of work and responsibilities are confirmed with relevant persons in accordance with job requirements and workplace procedures
	1.4	Pre-start test weld sample is prepared in accordance with workplace procedures
2 Confirm pipe handling and jointing of polyethylene pipe	2.1	Pipe and materials hazards are identified, risks assessed and control measures prioritised, implemented and monitored in accordance with workplace procedures
	2.2	Equipment, tools and personal protective equipment (PPE) required to carry out the work are identified, obtained and checked for correct operation and safety in accordance with workplace procedures
	2.3	Relevant person/s are consulted to ensure the work is coordinated effectively with others involved
	2.4	Materials, plans, diagrams, drawings and resources required to weld and lay polyethylene gas distribution mains are confirmed, scheduled and obtained in accordance with workplace procedures
	2.5	Unsuitable or damaged materials including improperly stored materials are rejected/rectified and reported in accordance with workplace procedures
	2.6	Safety and emergency response procedures and responsibilities for an incident are checked and confirmed with relevant person/s
	2.7	Site preparation, safety plan, traffic management plan and work schedule are confirmed with relevant person/s in accordance with workplace procedures
3 Construct and weld polyethylene gas distribution mains	3.1	WHS/OHS and environmental risk control measures, schedule of work and workplace procedures for carrying out work are monitored and followed
	3.2	Materials, tools, equipment and measuring devices required for the work are selected and used correctly and safely in accordance with manufacturer instructions and workplace procedures

- 3.3** Hazardous activities are conducted safely in accordance with WHS/OHS workplace procedures and job requirements
 - 3.4** Welding and laying of polyethylene gas distribution mains are conducted in accordance with relevant industry standards and workplace procedures
 - 3.5** Materials are prepared, aligned, constrained and jointed in accordance with relevant industry standards and workplace procedures without waste
 - 3.6** Unplanned incidents/events are referred to relevant persons for directions in accordance with workplace procedures
 - 3.7** Welds and safety checks of work and testing of pipework is carried out in accordance with industry standards, work instructions and workplace procedures
- 4 Complete work and relevant documentation**
 - 4.1** WHS/OHS and environmental risk control measures for work completion are followed
 - 4.2** Work site is rehabilitated, cleaned up and made safe in accordance with workplace procedures
 - 4.3** Tools, equipment and any surplus resources and materials are cleaned, checked and securely stored in accordance with workplace procedures
 - 4.4** Relevant person/s are notified of work completion in accordance with workplace procedures
 - 4.5** Relevant documentation is completed and provided to appropriate person/s in accordance with workplace procedures

Foundation Skills

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

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEG Gas Industry Training Package Companion

Volume Implementation Guide.

Unit Mapping Information

This is a new unit.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6a6c032e-ffcb-4f3d-8063-415efbd261e8>

Assessment Requirements for UEGNSG200 Conduct butt fusion of large diameter polyethylene gas pipeline systems

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying equipment material handling procedures in accordance with workplace procedures
- applying relevant industry standards, guidelines, codes of practice and regulations including pre-start test weld
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) workplace procedures including applying risk control measures for stray, static and electrical faults
- applying sustainable energy and environmental principles and practices
- assembling, joining and laying polyethylene gas distribution mains in accordance with workplace procedures
- assessing pipework prior to welding and post weld in accordance with weld specifications
- assessing real time weather and site conditions controls including high wind, secondary cleaning processes and control measures
- checking tools, equipment, plant and personal protection equipment (PPE) for correct operation and safety including ensuring equipment is in calibration dates in accordance with workplace procedures or manufacturer specifications
- cleaning, checking and storing tools and equipment
- communicating effectively with others
- completing required documentation and reporting
- conducting visual weld inspection, quality and safety checks in accordance with weld specifications
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- identifying and correctly reading plans, drawings, manuals and diagrams
- installing large diameter polyethylene butt fused system on gas distribution mains including:
 - calculating butt welding parameters
 - checking generator specifications to welder requirements and associated equipment rating
 - selection of materials and capabilities
- preparing the weld site and specific environment in accordance with safe work method statement, job specification, work instruction or project requirements

- rehabilitating and maintaining a clean work area
- reporting and rejecting unsuitable or damaged materials in accordance with workplace procedures
- selecting correct materials, equipment, tools, personal protection equipment and measurement devices
- undertaking at least two joints; one joint pre-start test weld joint in accordance with relevant industry standards and job specification, at least one of the joints must be completed with fully automated butt fusion equipment.

Knowledge Evidence

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

- conditions for direct installation and insertion of polyethylene pipeline
- construction of polyethylene pipelines
- effective communication techniques
- environmental and sustainable energy principles and practices
- installation, inspection and testing of polyethylene pipelines
- jointing procedures, methods and calculations
- material compatibility including material thicknesses and types
- polyethylene gas pipelines types, characteristics and components
- problem-solving techniques
- relevant industry standards, legislation, regulations and codes of practice
- relevant manufacturer specifications
- relevant materials, plans, diagrams, drawings and resources
- relevant materials, tools, equipment, plant, measuring devices and PPE
- relevant WHS/OHS legislated requirements, including:
 - hazards, risk assessment and control measures
 - hazards of working with gas
 - hazardous activities, including the use of power tools, lifting, manual handling, climbing, and working in restricted space, excavations and trenches
 - relevant safe work method statements (SWMS)/job safety assessments or risk mitigation processes includes electrostatic hazards and risk mitigation
 - risk controls for stray, static and electrical faults
- relevant workplace documentation including calculations and inspection results
- relevant workplace policies and procedures including material storage, inspection, handling and reporting workplace procedures
- site preparation, safety plans, job requirements and work schedules
- weld quality and safety checks.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

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.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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