



Australian Government

Department of Education, Employment and Workplace Relations

UEGNSG307B Perform routine maintenance on transmission pipeline facilities and equipment

Release: 1

UEGNSG307B Perform routine maintenance on transmission pipeline facilities and equipment

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers the performance of minor maintenance of pipelines, facilities and associated equipment. This competency standard includes using equipment, tools and testing devices; identifying the types of faults; completing the appropriate documentation and reports in accordance with requirements.

Application of the Unit

Application of the Unit 2)

This competency standard shall apply to any basic and safe work site where Gas Industry operations occur. It could also apply, where applicable to other workplaces in the electricity supply industry (transmission and distribution and generation), the electrotechnology industry and the water industry, subject to all Occupational Health and Safety and duty of care requirements being met for the workplace.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit are not subject to licence regulation other than those directly related to Occupational Health and Safety, gas/electricity/water industry safety and compliance, industrial relations, environmental protection,

License to practice

3)

telecommunications, anti discrimination and training. Commonwealth, State/Territory or Local Government legislation and regulations may exist that limits the age of persons who can operate certain equipment.

Pre-Requisites

Prerequisite Unit(s)

4)

Competencies

4.1)

Granting of competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed:

Nil

Literacy and numeracy skills

4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 3 Writing 3 Numeracy 3

Employability Skills Information

Employability Skills

5)

This unit contains Employability Skills

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit
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

ELEMENT	PERFORMANCE CRITERIA
1 Prepare and plan for minor maintenance on transmission pipeline facilities and equipment	1.1 Work schedule including drawings, plans, requirements, established procedures and material lists are received, analysed and confirmed if necessary by site inspection
	1.2 Relevant requirements and established procedures for the work are communicated to all persons and identified for all work sites
	1.3 OHS, environmental and sustainable energy policies and procedures related to the performing of routine maintenance of pipeline, facilities and equipment are obtained and confirmed for the purposes of the work performed and communicated
	1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures
	1.5 Risk control measures for identified hazards are prioritised, implemented and monitored against the work schedule
	1.6 The facilities/equipment are made safe by ensuring it is safely isolated, depressurised, tagged and locked out and a permit to work is obtained to access and perform work according to requirements and established procedures
	1.7 Resources including appropriately licensed persons, equipment, tools and personal protective equipment required for the job are identified, scheduled and obtained and

ELEMENT	PERFORMANCE CRITERIA
2 Perform routine maintenance on transmission pipeline facilities and equipment	confirmed in working order
	1.8 Relevant persons at worksite are confirmed to be current in First Aid and other related work procedures according to requirements
	1.9 Liaison and communication issues with authorised persons, authorities, clients and land owners are resolved and activities coordinated to carry out work
	1.10 Site is prepared according to the work schedule and to minimise risk and damage to property, commerce and individuals in accordance with established procedures
	1.11 Persons participating in the work, including plant operators and contractors are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures
	1.12 Road signs, barriers and warning devices are positioned in accordance with requirements
	2.1 OHS policies and procedures and safe work practices are followed to eliminate or minimise incidents and hazards
	2.2 Lifting, climbing, working in confined spaces, excavations, trenches, or aloft, and use of power tools, techniques and practices are safely followed and currency according to requirements confirmed
	2.3 Essential Knowledge and Associated Skills are applied to the performing of routine maintenance of pipeline, facilities and equipment to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
	2.4 Routine maintenance of distribution facilities and equipment is carried out in accordance with the work schedule and to established procedures

ELEMENT	PERFORMANCE CRITERIA
3 Routine maintenance is completed and results recorded and notified	2.5 Hazard warnings and safety signs are recognised and hazards are assessed and OHS risks are reported to the immediate authorised persons for directions according to established procedures
	2.6 Unplanned events in the performing of routine maintenance of transmission pipeline, facilities and equipment is undertaken with the scope of established procedures
	2.7 Known solutions to a variety of problems are applied using Essential Knowledge and Associated Skills
	2.8 Ongoing checks of quality of the work are undertaken in accordance with given instructions and established procedures
	3.1 Work undertaken is checked against works schedule for conformance with requirements, anomalies are reported in accordance with established procedures
	3.2 Accidents and injuries are reported in accordance with requirements and established procedures where applicable
	3.3 Work site is rehabilitated, cleaned up and made safe in accordance with given instructions and established procedures
	3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures
	3.5 Relevant work permit(s) are signed off and equipment is returned to service in accordance with requirements
	3.6 Work completion records, reports as installed, modified, drawings, documentation and information are finalised and processed and appropriate persons notified

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices for performing routine maintenance on transmission pipeline facilities and equipment.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01- G307B **Transmission pipeline facility and equipment maintenance**

G 3.3.22 Plan and prepare for low, medium and secondary pipeline inspection and testing procedures (above 1050kPa)
Evidence shall show an understanding of the requirements to plan and prepare for low, medium and secondary pipeline inspections and testing on a Gas Industry pipeline (Transmission), indicated by the following:

- relevant OHS procedures and environmental requirements in relation to preparing for inspection and testing procedures on low, medium and secondary pipelines, facilities and equipment
- planning requirements necessary to carry out inspection and testing procedures on low, medium and secondary pipelines, facilities and equipment
- identification of tools, instruments and equipment required for inspection and testing procedures on low, medium and secondary pipelines, facilities and equipment
- obtaining and interpreting various workshop manuals, part lists, checklists and specifications as required
- locate and discuss the use of appropriate emergency equipment.

G 3.3.23 Secure facilities/equipment prior to inspection and testing of low, medium and secondary pipelines, facilities and equipment (above 1050kPa)
Evidence shall show an understanding of the requirements to secure facilities and equipment for inspection and testing of low, medium and secondary pipelines, facilities and equipment on a Gas Industry pipeline (Transmission), indicated by the following:

- discussion of the requirements for safety plans and non-routine procedures
- identification of precautions and concerns relevant to the inspection and testing being carried out
- demonstration of the procedures to safely isolate, depressurise, tag and lockout facilities and equipment
- adherence to procedures, OHS, legislative and environmental requirements.

G 3.3.24 Inspect and test low, medium and secondary pipelines, facilities and equipment (above 1050kPa) in accordance with procedures, OHS and environmental requirements

Evidence shall show an understanding of the requirements to inspect and test low, medium and secondary pipelines, facilities and equipment in accordance with procedures, OHS and environmental requirements, indicated by the following:

- identification of types of pipeline, facilities and equipment to be inspected and tested
- types of faults and their characteristics that may be encountered during inspection and testing procedures of pipelines, facilities and equipment
- characteristics of the operating capabilities and limitations of tools and equipment used to inspect and test pipelines, facilities and equipment
- carrying out of inspection and testing of pipelines, facilities and equipment in accordance with procedures, OHS and environmental requirements.

G 3.3.25 Correctly diagnose and assess faults of low, medium and secondary pipelines, facilities and equipment (above 1050kPa)

Evidence shall show an understanding of the requirements to correctly diagnose and assess faults of low, medium and secondary pipeline, facilities and equipment, indicated by the following:

- methods available for fault finding and trouble shooting to determine what maintenance is required.
- evaluation of the condition of operational systems equipment for safety and serviceability
- identification of required maintenance
- communicate and document the required findings/actions using the appropriate reporting and recording systems.

G 3.3.26 Plan and prepare for high pressure pipeline inspection and testing procedures

Evidence shall show an understanding of the requirements to plan and prepare for high pressure pipeline inspection and

testing procedures for a Gas Industry pipeline (Transmission), indicated by the following:

- explanation of relevant OHS, procedures and environmental requirements in relation to preparing for inspection and testing procedures for high pressure pipelines, facilities and equipment
- planning requirements necessary to carry out inspection and testing procedures on high pressure pipelines, facilities and equipment
- tools, instruments and equipment required for inspection and testing procedures on high pressure pipelines, facilities and equipment
- workshop manuals, part lists, check lists and specifications required
- appropriate emergency equipment.

G 3.3.27 Secure facilities/equipment prior to inspection and testing of high pressure pipelines, facilities and equipment
Evidence shall show an understanding of the requirements to secure facilities and equipment prior to the inspection and testing of high pressure Gas Industry pipeline (Transmission), facilities and equipment, indicated by the following:

- requirements for safety plans and non-routine procedures
- precautions and concerns relevant to the inspection/testing being carried out
- procedures to safely isolate, depressurise, tag and lockout facilities/equipment
- procedures, OHS legislative and environmental requirements.

G 3.3.28 Inspect and test high pressure pipelines, facilities and equipment in accordance with procedures, OHS and environmental requirements
Evidence shall show an understanding of the requirements to Inspect and test high pressure pipelines, facilities and equipment in accordance with procedures, OHS and environmental requirements, indicated by the following:

- requirements for safety inspecting and testing high pressure pipelines, facilities and equipment
- precautions and concerns relevant to the inspection/testing being carried out
- procedures to safely isolate, and safely inspect and test high pressure pipelines, facilities and equipment
- OHS legislative and environmental requirements related to inspecting and testing high pressure pipelines,

facilities and equipment.

G 3.3.29 Correctly diagnose and assess faults of high pressure pipelines, facilities and equipment

Evidence shall show an understanding of how to correctly diagnose and assess faults of high pressure pipelines, facilities and equipment on a Gas Industry pipeline (Transmission), indicated by the following:

- methods available for fault finding and troubleshooting to determine what maintenance is required
- condition of operational systems equipment for safety and serviceability
- identifying the required maintenance
- communicating and documenting the required findings/actions using the appropriate reporting and recording systems.

G 3.3.30 Plan and prepare for routine maintenance on low, medium and secondary pipelines, facilities and equipment (above 1050kPa)

Evidence shall show an understanding of how to plan and prepare for routine maintenance of low, medium and secondary pipelines, facilities and equipment on a Gas Industry pipeline (Transmission), indicated by the following:

- maintenance work to be carried out, the required equipment and materials and the relevant manufacturer's specifications and procedures
- OHS and environmental requirements applicable to the work area
- relevant plans, drawings and written information required to perform maintenance
- preparation of equipment including the adjusting and calibration to ensure high performance operation.

G 3.3.31 Secure work area prior to maintenance of low, medium and secondary pipelines, facilities and equipment (above 1050kPa)

Evidence shall show an understanding of the requirements to secure work areas prior to maintenance of low, medium and secondary pipelines, facilities and equipment on a Gas Industry pipeline (Transmission), indicated by the following:

- identification and obtaining required permits
- preparation and securing of a work area in accordance with ohs and environmental requirements
- locating and using appropriate emergency equipment.

G 3.3.32 Perform routine maintenance on low, medium and secondary

pipelines, facilities and equipment (above 1050kPa)
Evidence shall show an understanding of the performing routine maintenance on low, medium and secondary pipelines, facilities and equipment for a Gas Industry pipeline (Transmission), indicated by the following:

- different types of maintenance procedures appropriate for high pressure pipelines, facilities and equipment
- maintenance procedures relevant to required work
- tools, instruments and all other equipment safely and effectively during the required maintenance tasks
- routine maintenance following manufacturer's specifications OHS requirements and procedures in an efficient and effective manner.

G 3.3.33 Notify completion of work on low, medium and secondary pipelines, facilities and equipment (above 1050kPa)
Evidence shall show an understanding of the procedures for the notification of the completion of work on low, medium and secondary pipelines, facilities and equipment, indicated by the following:

- procedures for documenting and recording maintenance results
- notification of the relevant authorities in relation to completion of work in accordance with procedures
- completion of maintenance records including parts used, further maintenance requirements and time to next service
- cancel and sign off relevant work permits on completion of maintenance work
- clearance of work area of equipment, tools and materials.

G 3.3.34 Plan and prepare for routine maintenance of high pressure pipelines, facilities and equipment
Evidence shall show an understanding of the procedures required to plan and prepare for routine maintenance of high pressure pipelines and equipment on a Gas Industry pipeline (Transmission), indicated by the following:

- identification of the types of problems and faults that may require repair
- obtain, interpret and use the relevant technical drawings, plans and specifications during the preparation and planning of repair work
- identify hazards and explain the relevant OHS procedures and environmental requirements that require implementation prior to and during repair work
- identification of procedures, persons, equipment and

processes required for repair work and plan the coordination of these resources

- obtain the required work permits
- locate and securing of emergency equipment and ensure all persons are familiar with emergency plans.

G 3.3.35 Secure work area and equipment prior to repair
Evidence shall show an understanding of the requirements to secure a work area and equipment prior to repair on a Gas Industry pipeline (Transmission), indicated by the following:

- requirements for, and use of, work permits, safety plans, non-routine procedures and safety checklists
- implementation and adherence to procedures, OHS and environmental requirements to ensure a safe worksite is established and maintained
- preparation of equipment for repair work ensuring it is depressurised, tagged and locked out
- routine checks and documentation of facilities/equipment and discuss overall repair process
- verification that facilities and equipment are safe for repair work to commence.

G 3.3.36 Perform routine maintenance on high pressure pipelines, facilities and equipment
Evidence shall show an understanding of the requirements to undertake the routine maintenance on high pressure pipeline, facilities and equipment, indicated by the following:

- different types of maintenance procedures appropriate for high pressure pipelines, facilities and equipment
- maintenance procedures relevant to the required work
- tools, instruments and all other equipment that is used safely and effectively during maintenance tasks
- routine maintenance following manufacturer's specification, OHS requirements and procedures in a efficient manner.

G 3.3.37 Notify completion of work on high pressure pipelines, facilities and equipment
Evidence shall show an understanding of the process for completing work on high pressure pipelines, facilities and equipment, indicated by the following:

- procedures for documenting and recording maintenance results
- notifying the relevant authorities of completion of work in accordance with procedures
- maintenance records including parts used, further

- maintenance requirements and time to next service
- signing off of relevant work permit procedures
- cleaning up of work area equipment, tools and materials.

Evidence Guide

EVIDENCE GUIDE

9) The Evidence Guide forms an integral part of this Unit and shall be used in conjunction with all components parts of the unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry regulatory policy in this regard.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practiced. These points are raised for the

assessors to consider when choosing an assessment method and developing assessment instruments. Sample instruments are included for Assessors in the Assessment Guidelines of this Training Package.

**Critical aspects
of evidence
required to
demonstrate
competency in
this unit** 9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines — UEG11'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and range
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit to such an extent that the learner's performance outcome is reported in accordance with the preferred approach; namely a percentile graded result, where required by the regulated environment
 - Demonstrate an appropriate level of employability skills
 - Conduct work observing the relevant anti-discrimination legislation, regulations, policies and workplace procedures
- Demonstrate performance across a representative range of contexts from the prescribed items below.

Range of tools/equipment/procedures/workplace		
Group No	The minimum number of items on which skill is to be demonstrated	Item List

A	All	Relevant knowledge of AS 1697 Relevant knowledge of AS 2885 Relevant knowledge of AS 2865 Interpret technical drawings and symbols. Documentation (permits, schedules) Risk assessment implemented Implementation of Safety Procedures Able to communicate instructions/schedules Approvals from authorities Emergency Response procedures Environmental Code of Practice applied Communicate with other authorities and Stakeholders
B	At Least 2	Basic knowledge of: Steel pipeline coating repair Steel pipeline coating testing Steel field joint coating
C	All	Purging a pipeline: Purging Procedures Relevant compliance with AS 2885 Operation of Gas Detector Isolating, venting and purging gas pipeline systems Communication with authorities Related environmental issues
D	At Least 2	Basic knowledge only: City Gate operation.

		Line Valve operation Pressure control procedure
E	All	Basic understanding only: Trenching Shoring
F	All	Basic understanding only: Pipeline Cathodic Protection. Relevant electrical safety.
G	All	Re-commission pipeline. Pressure control procedure All testing of repairs checked/completed Pressure is according to specifications
H	All	Final Inspections are carried out Site rehabilitation/reinstatement carried out Drawings/plans updated Reports completed Sign Off Procedures carried out
I	At least one occasion	Deal with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items

Context of and specific resources for assessment 9.3)

This unit contains Employability Skills

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a

workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this Competency Standard Unit
- Appropriate environmental regulation and work practices.
- Appropriate organisational requirements.
- Appropriate work environment, equipment and tools.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency in performing routine maintenance on transmission pipeline facilities and equipment.

Assessment of this competency must also be undertaken in either an actual workplace or under a simulated work environment. Assessment must also integrate the employability skills

Method of assessment

9.4)

This Competency Standard Unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note: Competent performance with inherent safe working practices is expected in the Industry to which this Competency Standard Unit applies. This requires that the specified Essential Knowledge and Associated Skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and associated skills described in this unit.

Concurrent assessment and relationship with other units

9.5)

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied Competency Standard Units where listed.

UEGNSG302B Maintain pipeline easements

UEGNSG329 Gas transmission pipeline surveillance
A

UEGNSG308B Identify, evaluate and control threats to
transmission pipelines

UEGNSG309B First on site emergency response on a
transmission pipeline

UEGNSG310B Supervise and monitor contract work

UEGNSG311B Site control of third party works in the vicinity of
a transmission pipeline

Range Statement

RANGE STATEMENT

10) This relates to the competency standard unit as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

This Competency Standard Unit shall be demonstrated in relation to perform routine maintenance on transmission pipeline facilities and equipment.

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section of this volume and form an integral part of the Range Statement of this unit:

Equipment (3)

Tools, equipment and testing devices (3)

Types of faults (3)

Documentation (3)

Reports (3)

Unit Sector(s)

Not applicable.

Competency Field

Competency Field 11)

Transmission.