



Australian Government

UEGNSG353A Carry out aerial surveillance of gas transmission pipelines

Release 1

UEGNSG353A Carry out aerial surveillance of gas transmission pipelines

Modification History

This unit replaces UEG11 unit UEGNSG315B Aerial transmission pipeline surveillance.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers the aerial surveillance of gas transmission pipelines, easements and/or surrounding environs in accordance with relevant legislation, code, regulations and established procedures.

The competency standard is applied against the procedures found under latest edition of Australian and New Zealand Standard AS 2885.3.

This unit encompasses to threat mitigation through identification of system non-conformance; the areas to be monitored; inspection of areas; system's pipe work; structures; fittings; equipment; organisational and statutory requirements and recording and reporting.

Application of the Unit

Application of the Unit 2)

This competency standard shall apply to gas transmission pipelines, subject to all Workplace Health and Safety (WHS) /Occupational Health and Safety (OHS) and duty of care requirements being met for the workplace.

This unit is intended as an AQF 3 competency for new and existing workers in the gas industry. It is suitable for employment-based programs under an approved contract of training.

Licensing/Regulatory Information

License to practice 3)

During Training:

Competency development activities are subject to regulations directly related to licensing, workplace health and safety/occupational health and safety and where applicable contracts of training such as apprenticeships.

In the workplace:

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

UEGNSG005A Prepare to work in the gas industry

UEGNSG140A Apply environmental policies and procedures in the utilities industry

UEGNSG141A Apply Workplace Health and Safety regulations, codes and practices in the gas industry

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 to carry out aerial surveillance of gas transmission pipelines | 1.1 Specific requirements, drawings, plans, requirements, established procedures and material and equipment are examined and the extent of preparation for the work is assessed. |
| | 1.2 Relevant requirements and established |

ELEMENT**PERFORMANCE CRITERIA**

- procedures for the work are communicated to all persons
- 1.3 WHS/OHS, environmental and sustainable energy policies and procedures related to requirements and established procedures for gas pipeline surveillance are obtained and confirmed
 - 1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures
 - 1.5 WHS/OHS and environmental risk control measures for identified hazards are prioritised, implemented and monitored against the work schedule
 - 1.6 Relevant work permits are obtained to access and perform work according to requirements and established procedures
 - 1.7 Resources including persons, equipment, tools and personal protective equipment required for pipeline surveillance are identified, scheduled and obtained and confirmed in a safe working order
 - 1.8 Liaison and communication issues with authorised persons, authorities, clients and land owners are resolved and activities coordinated to carry out work
 - 1.9 Persons participating in the work are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures
 - 1.10 Work preparation, safety plan and the work schedule are confirmed in accordance with established procedures.

ELEMENT	PERFORMANCE CRITERIA
2 Carry out aerial surveillance of gas transmission pipelines and identify non-conformance	2.1 WHS/OHS and risk control measures, schedule of work and standard operating procedures for carrying out the work are followed.
	2.2 Routine surveillance of pipeline is conducted and faults reported in a timely manner against work schedule(s) and established procedures and confirmed if necessary by site inspection
	2.3 Analysis of information to identify key issues is undertaken as required and information is evaluated for relevance and validity to the requirements
	2.4 Dealings with customers are consistent with standard operating procedures and the special needs of customers are identified and considered in targeting client service
	2.5 Leakages and damaged pipes, fittings and appurtenances are recorded in accordance with the work schedule and established procedures
	2.6 Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures
	2.7 Unplanned events in pipeline surveillance are undertaken with the scope of established procedures
	2.8 System faults and the operational condition of the pipelines are identified and reported and known solutions are applied
	2.8 Works in the vicinity of the pipeline are identified and reported

ELEMENT	PERFORMANCE CRITERIA
3 Complete work and relevant documentation	<p>3.1 Solutions are developed based on consideration of relevant information and options and proposed solutions are communicated and implemented as required against works schedule, anomalies are reported in accordance with established procedures</p> <p>3.2 Incidents and injuries are reported in accordance with requirements and established procedures where applicable</p> <p>3.3 Solution is implemented in accordance with standard operating procedures ensuring that action is correctly documented, the transaction is accurately processed and the customer is advised</p> <p>3.4 Work completion records, reports and documentation are finalised and processed and appropriate persons notified</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) *This describes the skills and knowledge and their level, required for this unit.*

Evidence shall show that knowledge has been acquired of safe working practices for aerial surveillance of gas transmission pipelines

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies. The extent of the required skills and knowledge is provided below. It forms an integral part of this unit.

KS01-G353A Gas transmission pipeline aerial surveillance

Evidence shall show an understanding of carrying out aerial surveillance of gas transmission pipelines in accordance with relevant legislation, code, regulations and procedures. to an extent indicated by the following aspects:

T1. Relevant legislation, Australian Standards, codes, regulations and procedure requirements

T2. WHS/OHS safety requirements

- hazards, risk assessment and control measures
- identify environmental and safety hazards, assess risks and implement control measures
- Hazardous materials
- MSDS
- PPE

T3. Gas Industry facilities and infrastructure

- regulation and metering facilities
- compression facilities
- gas processing facilities such as coal seam methane plants
- odourisation facilities
- relevant operating policies and procedures

T5. Gas Industry products, processes and characteristics

- products, characteristics and tolerances including:
 - principles of applicable gas laws
 - gas pressure
 - gas temperature
 - compressibility
- relative density – specific gravity
- hydrocarbon and water dew points
- components of applicable natural gases including LPG
- standard gas conditions
- combustion
- venting and purging principles
- effects of temperature and pressure on infrastructure

T6. Gas industry documents

- signs, symbols terminology and legends as used in gas industry procedures and documents
- gas industry standards, policies and procedures
- basic drawings and diagrams
- Process and Instrumentation Diagrams (PID)
- Facility and pipeline construction and as-built drawings
- Geographical Information System (GIS) drawings and data
- Electrical drawings
- Survey maps
- Pipeline route maps and alignment sheets
- topographical and geographical maps and information.
- workplace forms and reports

T7. Problem solving

- methodology
- possible solutions and probable solutions
- basic problem solving techniques

T8. Security breach procedures

- identification of different types of security incidents including but not limited to:
- physical security breaches at gas infrastructure
- threat assessment and management
- confidential information security
- communication with applicable emergency service and regulatory organisations
- compliance with applicable enterprise security policies and procedures

T9. Gas transmission pipeline environmental protection processes

- relevant environmental legislation and environmental regulations
- effects a pipeline can have on:
 - flora and fauna
 - agriculture
 - erosion to soil.
 - air quality
 - waterways
- application of relevant policies and procedures

T10. Gas transmission pipeline surveillance

- relevant legislation and requirements
- safety requirements
- reporting requirements
- established procedures

Evidence Guide

EVIDENCE GUIDE

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

Overview of Assessment 8.1)

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, all summative (or final) assessment is to include the application of the competency in the normal work environment or, at a minimum, its application in a realistically simulated work environment. 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 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 8.2)

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 required knowledge and 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.
 - Carrying out aerial surveillance of gas transmission pipelines in accordance with relevant legislation, code, regulations and procedures as described as described in 9.) Range Statement and including:

Range of tools/equipment/procedures/work place		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	All	<ul style="list-style-type: none"> • Identify threats to the integrity of transmission pipelines • Evaluate threats to the integrity of transmission pipelines • Control of the escalation of threats to the public, environment,

		<p>transmission pipelines and facilities</p> <ul style="list-style-type: none"> • Working knowledge of relevant sections of latest edition of AS2885.3 Pipelines-Gas and Liquid Petroleum Gas Operations and Maintenance: Sections 3, 4.3, 5.3.6.1, 5.4.1, 5.4.3, 5.5 section 6 threat mitigation • Demonstration of the practical use of communication equipment • Identifying faults • Recording information
B	All	<ul style="list-style-type: none"> • Interpret technical drawings and symbols • Work using relevant OHS and legislation, regulations, codes of practice, policies, procedures • Maintain a safe and clean workplace • Work safely with hazardous materials and equipment • Communicate effectively in the workplace • Practical knowledge of the properties of product being transported • Apply basic planning skills
C	At least one occasion	Deal with an unplanned event by drawing on required knowledge and skills to provide

		appropriate solutions incorporated in the holistic assessment with the above listed items
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Context of and specific resources for assessment 8.3)

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 aerial transmission pipeline surveillance.

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 8.4)

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 required Knowledge and 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 required knowledge and skills described in this unit.

**Concurrent
assessment and
relationship
with other units**

8.5)

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.

UEGNSG342A	Maintain pipeline easements
UEGNSG349A	Carry out surveillance of gas transmission pipelines
UEGNSG221A	First on site response to gas pipeline emergencies

Range Statement

RANGE STATEMENT

9) 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 aerial surveillance transmission pipelines.

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:

- Areas to be monitored
- Inspection of areas
- Systems pipe work
- Structures
- Fittings and appurtenances
- Organisational and statutory requirements
- Recording and reporting
- Tools and equipment
- Maps and drawings
- Established procedures
- PPE and First Aid equipment
- External interference
- Aerial
- Aerial hazards
- Transmission pipeline standards
- Maps and drawings

Unit Sector(s)

Gas supply industry

Custom Content Section

Competency Field **10)**

Transmission.