



**Australian Government**

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

# **UEGNSG327A Coordinate transmission pipeline construction operations**

**Release: 1**

## UEGNSG327A Coordinate transmission pipeline construction operations

### Modification History

Not applicable.

### Unit Descriptor

#### Unit Descriptor

#### 1) Scope:

##### 1.1) Descriptor

This competency standard unit covers the coordination of transmission pipeline construction activities. This competency refers to the following pipeline construction activities:

Backfill; Clear and Grade; Ditching; Hydro Testing; Joint Coating; Lower and Lay; Mechanical (minor maintenance); String and bend; Welding.

Note: This unit has 9 (nine) endorsement areas which are outlined in detail in the Range Statement (section 7 of this competency standard unit).

### 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, telecommunications, anti discrimination and training. Commonwealth, State/Territory or Local Government legislation and regulations may exist that limits the age of operating 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:

UEGNSG320A Establish right of way access for transmission pipeline construction

UEGNSG328A Supervise the operation of relevant plant and equipment for transmission pipeline construction

### 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 4      Writing 4      Numeracy 4

## 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 Plan for transmission pipeline construction activities	1.1 Work instructions are received and confirmed
	1.2 OHS, environmental and sustainable energy policies and procedures to be followed for the work to be performed are received and confirmed.
	1.3 Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures
	1.4 Alignment sheets are used to determine correct construction operations against the work schedule and is checked for a quality outcome to minimise risk and damage to property, commerce and stakeholders in accordance with established procedures

**ELEMENT****PERFORMANCE CRITERIA**

- |   |   |   |
|---|---|---|
|   | 1.5   | Worksite is inspected and assessed using appropriate resources to determine requirements in accordance with standard operating procedures and relevant requirements   |
|   | 1.6   | Discussion occurs and suggestions made and received with all persons to establish and confirm work schedule   |
|   | 1.7   | Scope of responsibility under the relevant work permit where applicable is received and confirmed according to requirements and established procedures with relevant persons  |
|   | 1.8   | Resources including qualified procedures, personnel, plant, equipment, tools and personal protective equipment required for the job are obtained and in working order according to established procedures   |
|   | 1.9   | Relevant responsibilities associated with first aid and other related work safety procedures at the worksite are confirmed in accordance with requirements and established procedures to ensure safety measures are followed in the instance of an incident |
|   | 1.10  | Client issues where applicable are referred to appropriate persons in accordance with industry and community standards  |
| 2 | Carry out transmission pipeline construction operations |   |
|   | 2.1   | OHS policies, procedures and safe work practices are followed to eliminate or minimise incidents and hazards  |
|   | 2.2   | Lifting, climbing, working aloft, and use of tools and equipment, techniques and practices are safely followed in accordance with requirements to eliminate the prospects of incidents  |
|   | 2.3   | Work area is made safe and pipeline construction activities are carried out in accordance with given instructions and established procedures  |
|   | 2.4   | Pipeline construction activities are carried out in   |

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	an agreed timeframe and to quality standards and the approved procedures with a minimum of waste according to requirements and established procedures
	2.5 Operational knowledge as applied to potential hazards and safety risks is reported to the immediate authorised persons for directions according to established procedures
	2.6 Non-routine events are referred to the immediate authorised persons for directions according to established procedures
	2.7 Remedial action associated with pipeline construction operations is dealt with using acquired known solutions and skills related to routine procedures to ensure work instructions and established procedures are met
	2.8 Ongoing checks and data collection relating to the quality of the work are undertaken in accordance with given instructions and established procedures
3 Complete transmission pipeline construction operations	3.1 Pipeline construction operations are monitored to ensure integrity of the pipe and the coating is maintained
	3.2 Compliance against the work schedule is maintained and any anomalies are reported to authorised persons in accordance with established procedures
	3.3 Accidents and incidents are actioned and reported to authorised persons in accordance with established procedures
	3.4 Tools, equipment and any surplus resources and waste materials are where appropriate, removed, cleaned, checked and returned to storage in accordance with established procedures
	3.5 Appropriate persons are notified of work completion according to established procedures

**ELEMENT****PERFORMANCE CRITERIA**

- 3.6 Work completion records, report forms and data sheets are completed accurately in accordance with given instructions and established procedures

**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 maintaining pipeline easements to perform work in a transmission pipeline construction industry work environment.

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

**KS01-  
G327A            Transmission pipeline construction operations**

G 2.3.16 Transmission pipeline construction OHS, environmental and cultural legislative and regulatory requirements  
Evidence shall show an understanding of the practical work requirements embedded in the OHS, Environmental and Cultural Legislation and Regulations.

For OHS:

- Complete Risk Assessment forms such as Work Permits and JHA's, JSA's, JSEA's, SWM's etc Hazard Identification
- Manual handling
- Basic First Aid
- MSDS
- Understanding how to apply control measures
- Emergency Response
- Signage
- Licenses and tickets
- Working at heights
- Awareness of confined spaces
- For Environmental:

- Weed mitigation
  - Erosion control
  - Emission laws
  - Quarantine laws
  - Licenses
  - Permits
  - For Cultural and Heritage Awareness:
    - Cultural and heritage awareness tagging
    - Understanding the role of the cultural monitor
    - Uncovering of cultural/heritage artefacts
    - Understanding heritage and cultural issues
    - Understanding legislative and regulatory requirement applicable in working situations
- G 2.3.17 Knowledge of right of way set out and ditch line  
Evidence shall show an understanding of translation of survey techniques into the right of way environment such as:
- Survey markers and off set markers, their meaning and relevant work applications.
- G 2.3.19 Knowledge of pipeline protective systems including bedding and padding materials  
Evidence shall show an understanding of the methods of protecting the pipeline from third party interaction:
- use of marker tape, bedding materials, marker post signage.
- G 2.3.20 Operation of portable high pressure equipment  
Evidence shall show an understanding of safe operation of the following:
- high pressure equipment hoses and whip checks
  - Exclusion zone awareness
  - Specific signage requirements for using high pressure equipment
- G 2.3.21 Knowledge of ASNZ2885 for transmission pipeline construction crews  
Evidence shall show an understanding of the relevant sections of:
- ASNZ 2885 dependent on the endorsement area. eg Hydro test only needs 2885.5.
- G 2.3.22 Effective communication on a gas transmission pipeline construction site (between operators and ground crew)  
Evidence shall show an Knowledge of on-site pipeline construction communication strategies including:



- hand signals,
- satellite phones
- radios

G 4.1.3 Communicate effectively in the Gas Industry at a supervisory level

Evidence shall show an understanding of communication techniques required in supervisory roles in the Gas Industry, indicated by the following:

- communicate effectively with a variety of Gas Industry stakeholders, using strategies for dealing with difficult situations. The communication includes oral, written or electronic communications, : with various stakeholders including:
  - workplace colleagues
  - workplace managers
  - relevant customers and suppliers
  - regulatory bodies
  - property/land owners (including traditional land owners) and tenants
  - emergency response organisations

G 4.1.21 Drug and alcohol awareness and effects on the workforce

Evidence shall show an understanding of dealing with drug and alcohol abuse in a transmission construction worksite and other applicable gas industry workplaces. It includes:

- Knowledge and capability of identifying a worker who is affected by abuse of drugs or alcohol.
- Knowledge and understanding of relevant enterprise procedures for safely removing drug and alcohol affected workers from the worksite.
- Application of relevant policies and procedures

G 5.1.2 Apply problem solving, decision making and conflict resolution techniques

Evidence shall show an understanding and application of problem solving, decision making and conflict resolution techniques in a Gas Industry environment, indicated by the following:

- problem solving and decision making techniques
- the decision making environment
- group decision making
- guidelines for making decisions
- decision making aids and support systems
- negotiation with internal and external stakeholders

- the nature of negotiation
- strategy and tactics of bargaining
- pre-negotiation essentials
- communication in negotiation
- resolve conflict with internal or external stakeholders
- dealing with negotiation breakdowns
- social context of negotiation
- power in negotiation
- ethics in negotiation.

EKAS Clause below to be completed for the welding endorsement only:

G 4.1.25 Metallurgy

Evidence shall show an understanding of metallurgy including:

- Understanding of the welding procedures and the limits of essential variables in accordance with ASNZ 2885.
- Effects of operating conditions on pipelines e.g. changes in operating pressures and temperatures
- Effects of geological and environmental conditions on pipeline

## Evidence Guide

### EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit of competency and must be read in conjunction with the performance criteria and the range statement of the unit of competency and the Training Package Assessment Guidelines.

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 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 and, 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 assessment 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; and
  - Apply sustainable energy principles and practices as specified in the performance criteria and range; and
  - Demonstrate an understanding of the essential knowledge and associated skills as described in 'Essential Knowledge and Associated Skills' of this unit; and
  - Demonstrate an appropriate level of employability skills; and
  - Conduct work observing the relevant Anti discrimination legislation, regulations, policies and workplace procedures; and
- Demonstrated performance across a representative range of contexts from the prescribed items below: Must complete A, and one of the following groups B, C, D, E, F, G, H, I, J depending on the endorsement.

<b>Range of tools/equipment/procedures/workplace</b>		
<b>Group No</b>	<b>The minimum number of items on which skill is to be demonstrated</b>	<b>Item List</b>
A	All	OHS Communication Environment Conflict resolution Effective Supervision Effective Planning Manage pipeline construction records Manage pipeline construction procedures Draw at least once on the relevant essential knowledge and skills related to the endorsement area

B	All	<p>Backfill:</p> <p>Ensuring that bedding material meets specified requirements</p> <p>Ensuring the soil compaction meets specified requirements</p> <p>Correct placement of marker tape</p>
C	All	<p>Clear and Grade:</p> <p>Manage survey marker placement procedures</p> <p>Ensuring environmental and cultural compliance</p>
D	All	<p>Ditching:</p> <p>Ensuring compliance with regulator standards related to excavation</p> <p>Selection and ensuring correct operation of required plant, tools and equipment for various ground conditions</p>
E	All	<p>Hydro Testing:</p> <p>Ensuring the suitability and/or availability of water source for testing and practicable disposal</p> <p>Ensure effective safety controls are in place, particularly at public access points</p> <p>Working knowledge of ASNZ 2885.5 requirements</p> <p>Ensuring relevant OHS procedures are applied, particularly in relation to working out of normal hours</p>
F	All	<p>Joint Coating:</p> <p>Ensure applicators follow manufacturers guidelines</p> <p>Ensure effective joint coating testing techniques</p>

		are applied
G	All	Lower and Lay: Ensure crew correctly places pipe string Ensure pipe coating integrity is maintained Effective communication is applied to coordinate multi point lift of the pipe string Effective coordination with as built survey
H	All	Mechanical (Minor Maintenance): Ensure that pipeline construction plant, equipment and tools are effectively maintained to meet construction schedule
I	All	String and Bend: Understand capabilities of stringing plant, equipment and tools Limitations of the Vacuum Lift and consequences of incidents Appropriate motor vehicle license and skills training for ROW driving Accurate calculations for determining sequence of delivery of pipes Bending Procedures. Understand capabilities of bending plant, equipment and tools Understanding the consequence of shifting centres of gravity Trigonometric calculations for bending procedures
J	All	Welding: Ensuring welding joints are performed in accordance with welding procedures

		<p>Ensuring welding plant, equipment and tools are suitable to produce welded joints that meet specified requirements</p> <p>Ensuring relevant OHS procedures are applied, particularly in relation to working with potentially dangerous tools and equipment in a high temperature environment</p>
--	--	---

**Context of and specific resources for assessment**      **9.3)**

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 maintaining pipeline easements.

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) Assessment Method(s):**

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.



## Range Statement

### RANGE STATEMENT

**10)** This relates to the unit of competency 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 the maintaining of pipeline easements.

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:

Legislative and regulatory requirements for rigging

Rigging equipment, tools and materials

Crane Truck

Data Collectors

Generator

Permit to Work

### Specific unit endorsement outcomes

This competency standard unit is presented as a composite unit that has nine (9) specific outcomes. There are nine (9) distinct endorsable outcomes in which competence can be achieved and which is to be reported. This is done because of the high degree of commonality in knowledge, process or function. Reporting the unit with the inclusion of an endorsement allows for the formal identification of the necessary applied skills related to workplace outcomes and at the same time reflects the work classification(s) generally understood by industry. The specific unit outcomes are:

1. Backfill
2. Clear and Grade
3. Ditching
4. Hydro Testing
5. Joint Coating

**RANGE STATEMENT**

6. Lower and Lay
7. Mechanical (minor maintenance)
8. String and bend
9. Welding

This unit shall be demonstrated against the coordination of construction activities which are directly aligned to the 9 endorsements. These endorsements specify designated plant and equipment. The endorsements and related plant, equipment and other variables are as follows:

Backfill	All	Padding Machine Excavator Grader Dozer Front End Loader Mitsu Bucket
Clear and Grade	All	Dozer Excavator Grader Backhoe Front End Loader
Ditching	All	Excavator Rock Saw Bucket Wheel Trencher General Digging Conditions Hard Digging Conditions
Hydro Testing	All	Crane Truck Side Boom Rough Terrain Crane Pumps Dead Weight Tester Temperature Probes and Sensors Headers Drying Plant After Cooler Pig Chart Recorder

		Lighting Towers Gauging Plate
Joint Coating	All	Grit Blasting Rig (Skid Steer) Wrapping Machine Thermal Coil Temperature Probes and Sensors
Lower and Lay	All	Side Boom with Roller Cradles Excavator
Mechanical (minor maintenance)	All	Excavator and Vacuum Lift Bending Machine and Mandrels Internal Line up Clamp Tack Rig Side Boom Roller Cradles Rock Saw Bucket Wheel Trencher Thermal Coil Over Ditch Wrapping Machine Padding Machines Mitsu Bucket
String and bend	All	Excavator Bending Machine with Mandrels Side Boom Pipe Truck Vacuum Lift
Welding	All	Side Boom Internal Line up Clamp Tack Rig Temperature Probes and Sensors Headers

## Unit Sector(s)

Not applicable.

## Competency Field

Competency Field 11)

Transmission.