



Australian Government

UEGNSG348A Supervise the operation of plant and equipment for the construction of gas transmission pipelines

Release 1

UEGNSG348A Supervise the operation of plant and equipment for the construction of gas transmission pipelines

Modification History

This unit replaces UEGNSG328A Supervise the operation of plant and equipment for the construction of transmission pipelines

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers the supervision of personnel who operate plant and equipment used in the construction of transmission pipelines.

This unit encompasses the functions undertaken for transmission pipeline construction; interpreting instructions; the capabilities and the limits of plant, equipment and tools; and communication and supervision.

It also includes supervising the operations to ensure workplace/occupational health and safety, environmental and cultural heritage issues are effectively addressed in the transmission pipeline construction process.

Application of the Unit

Application of the Unit 2)

This competency standard shall apply to any gas transmission pipeline construction site, 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 entry level AQF 3 competency for new entrants 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 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 Occupational Health and Safety, gas/electricity/water industry safety and compliance, industrial relations, environmental protection, telecommunications, anti-discrimination and training.

Note:

Other conditions may apply under State and Territory legislative and regulatory requirements, for example:

Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control, lifting equipment.

Permits may also be required for some work environments such as hazardous areas, confined spaces, working aloft, near live electrical devices, site rehabilitation.

Compliance may be required in various jurisdictions relating to currency in First Aid, hazardous areas, confined space, lifting and risk safety measures

Commonwealth, State/Territory or Local government legislation and regulations may exist that limit the age at which a person 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:

UEGNSG00 Locate, prove and protect utility assets
4A

UEGNSG00 Prepare to work in the Australian gas industry
5A

UEGNSG00 Use a portable gas detectors to locate escape
6A

UEGNSG13 Carry out basic work activities in a utilities
2A industry work environment

UEGNSG14 Apply environmental policies and procedures in
0A the utilities industry

UEGNSG13 Establish a utilities infrastructure work site
4A

UEGNSG14 Apply Workplace Health and Safety regulations,
1A 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	4	Writing	4	Numeracy	4
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Employability Skills Information

Employability Skills 5)

This unit contains Employability Skills

Employability Skills 5)

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 work schedule for the use of plant and equipment

- 1.1 Work instructions are received and confirmed
- 1.2 Relevant WHS/OHS, environmental and sustainable energy policies and procedures to be followed for the work to be performed are received and confirmed
- 1.3 Work schedule is checked to ensure the resources and skills required have been checked for compliance in accordance with standard operating procedures and manufacturers specifications
- 1.4 Discussion occurs with all persons to establish and confirm work schedule, responsibilities and capabilities
- 1.5 Information regarding previous work activities is sought and appropriate actions taken with regard to current work schedule and use of plant and equipment

ELEMENT	PERFORMANCE CRITERIA
	1.6 Hazards are identified, WHS/OHS risks assessed and control measures are prioritised, implemented and monitored according to established procedures 1.7 Scope of responsibility under the relevant work permit are received and confirmed according to requirements and established procedures with relevant persons 1.8 Relevant responsibilities associated with first aid and other related work safety procedures at the worksite are confirmed in accordance with requirements and established procedures
2 Supervise operations as per the work schedule	2.1 WHS/OHS policies and procedures and safe work practices are followed to eliminate or minimise incidents and hazards 2.2 Instructions are provided for any remedial action associated with plant and equipment operation according to established procedures 2.3 Instructions are provided to operators to ensure the work area is made safe in accordance with established procedures 2.4 Hazards and risks related to safety and plant operation are identified through the application of operational knowledge and action is taken in accordance with established procedures 2.5 Non-routine events are referred to the immediate authorised persons for directions according to established procedures 2.6 Remedial action is taken using known solutions to ensure work schedule is met 2.7 Supervision of plant and equipment operation is undertaken and ongoing checks are undertaken in accordance established procedures

ELEMENT	PERFORMANCE CRITERIA
3 Complete work and relevant documentations	3.1 Plant and equipment usage is checked against the work schedule and anomalies are reported to authorised persons in accordance with established procedures
	3.2 Accidents and incidents are actioned and reported to authorised persons in accordance with established procedures
	3.3 Supervision of shutdown procedures is performed in accordance with established procedures to ensure environmental compliance and condition of plant and equipment is maintained
	3.4 Tools, plant and equipment and any surplus resources and materials are, where appropriate, cleaned, checked and securely stored
	3.5 Appropriate persons are notified of work completion according to established procedures
	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

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 using of equipment and tools to perform work in a utilities industry work environment.

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-G348A Transmission pipeline construction plant and equipment supervision

Evidence shall show an understanding of supervising the operation of plant and equipment for the construction of gas transmission pipelines in accordance with relevant legislation, standards, codes and established procedures to an extent indicated by the following aspects:

T1. Relevant state or territory legislation, regulations and codes

- requirements
- procedures

T2. Supervisory and leadership

- techniques
- work and equipment plans and schedules
- workforce supervision
- contingency planning and management
- project and time management
- diagnostic techniques

T3. Information and communication

- interpreting, applying and communicating information:
 - manufacturers manuals
 - requirements and procedures
 - technical information and drawings
 - site plans
 - basic geological and technical data
- site communication techniques
 - hand signals
 - satellite phones
 - radios
- stakeholders

T4. Transmission pipe construction techniques and equipment

REQUIRED SKILLS AND KNOWLEDGE

- equipment and tools
 - characteristics and operation
 - technical capabilities
 - applications and limitations
- construction activity procedures
- manual handling techniques used in accordance with WorkSafe standards
- site and equipment safety requirements and procedures
 - Risk assessment
 - PPE
 - Hazardous materials
 - Confined spaces
 - Gas detection
 - MSDS
 - Spill kits
 - Emergency and incident response
- quality assurance procedures

T5. Environmental requirements and procedures

T6. Cultural and Heritage awareness requirements and procedures

T7. Construction materials: properties, characteristics and applications

T8. Relevant documentation, forms and reports

Evidence Guide

EVIDENCE GUIDE

8) *The Evidence Guide forms an integral part of this 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, 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 practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included in the Assessment Guidelines of this Training Package.

**Critical aspects 8.2)
of evidence
required to
demonstrate
competency in
this unit**

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
 - Demonstrate an appropriate level of skills enabling employment
 - 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:
 - Supervise the operation of plant and equipment for the construction of gas transmission pipelines in accordance with relevant legislation, code, regulations and procedures as described in 9.) Range Statement and including:

Range of tools/equipment/procedures/workplace		
Group No	The minimum number of items on which skill is to be demonstrated	Item List
A	All	Application of organisational management systems and procedures for occupational health and safety which includes: • identifying hazards, • managing risk through the incorporation of effective control measures.
B	All	Working Knowledge of the

		standard operating procedures and the effective and safe use of Transmission Pipeline Construction small plant and equipment including the following: • General concrete mixer • General trolley • Non pressurised pumps and hoses • Wheelbarrows • Traffic barriers • Extra low voltage lighting equipment • Hand held tools • Gas detectors • Holiday detection equipment • Power tools • Pressurised pumps and hoses • Hand wrapping machines
C	All	Ability to communicate instructions to transmission pipeline construction workforce, contractors and stakeholders, including communication with ground crew during operations.
D	All	Working Knowledge of relevant legislation, regulations, codes of practice, standards, policies, procedures and permits pertaining to transmission pipeline construction operations.
E	All	Working knowledge of the relevant cultural heritage requirements for transmission pipeline construction operations.
F	All	Working Knowledge of relevant occupational health and safety requirements for Transmission Pipeline Construction Operations including the following: • Procedures for using dial

		before you dig service or its equivalent. • Location of other services such as utilities and rail and other transport infrastructure. • Effectively use MSDS sheets • Prepare Job Hazard Analyses • Implement control measures for identified Hazards • Hazardous area requirements adhered to • Correct use of PPE appropriate to Gas Industry • Hazard identification in pipeline construction • Safe manual handling techniques
G	All	Read and interpret transmission construction maps and drawings including the identification of key information such as symbols.
H	All	Ability to read, interpret and instruct subordinate staff on transmission construction procedures and other documentation.
I	All	Demonstrate a strategy for the coordination of an effective response to a transmission pipeline construction emergency.
J	All	Demonstrate a strategy for protecting the environment whilst constructing a transmission pipeline that incorporates the following items: • Installation of siltation control methods such as straw and synthetic bails • Curb side filter rolls • Erosion prevention • Weed spread mitigation • Application of MSDS

		information • Noise control techniques • Odourant handling and testing processes • Excavation restoration, compaction and seeding • Applying green tagging for flora and fauna habitat • Application of cultural heritage awareness and protection requirements for a pipeline construction site
K	All	Demonstrate a strategy for dealing with an environmental incident that includes the following items: • Control and minimise the impact of an environmental incident • Control environment incident • Incident Investigation • Applying incident reporting and notification procedures • Review environmental incident • Make recommendations to prevent reoccurrence • Implement recommendations
L	All	Working knowledge of transmission pipeline construction functions which include the following: • Backfill • Clear and Grade • Ditching • Hydro Testing • Joint Coating • Lower and Lay • Mechanical (Minor Maintenance) • String and Bend • Welding

M	All	Working Knowledge of the safe and efficient operation, including regulatory requirements, and maintenance schedule for large plant and equipment including the following: • Dozer • Excavator • Grader • Backhoe • Front End Loader • Side Boom • Internal Line Up Clamp • Tack Rig: Dozer or Skid Steer • Grit Blasting Rig: • Side Booms with Roller Cradles • Crane Truck: Heavy Rigid Truck • Rough Terrain Crane Note: the candidate will be expected to ensure that the equipment is operated by appropriately authorised/licensed personnel.
N	At Least 2 of the items in the list	Working Knowledge of the safe and efficient operation, including regulatory requirements, and maintenance schedule for large plant and equipment including the following: • Excavator with vacuum lift • Bending Machine with Mandrel • Rock Saw • Bucket Wheel Trencher • Over ditch Wrapping Machine • Thermal Coil • Padding Machines • Traffic Control

		Note: the candidate will be expected to ensure that the equipment is operated by appropriately authorised/licensed personnel.
O	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

Context of and specific resources for assessment 8.3)

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 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 key competencies.

Method of assessment 8.4)

This 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 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.

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 unit shall be demonstrated in relation to supervising the operation of transmission pipeline construction plant 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:

- Appropriate persons (3)
- This unit contains Employability Skills
- Documentation (2)
- Documentation (3)
- This unit contains Employability Skills
- Emergency equipment
- Emergency Response Manual
- Established procedures and requirements
- Inspect
- Legislation
- OHS policies and procedures
- Personal Protective Equipment
- Procedures
- Relevant Regulation and Procedures
- Relevant Sections of Standard Operating Procedures
- Responsibility
- Traffic control
- Work plans/schedules

This unit includes the supervision of transmission pipeline construction that requires operators to conduct functions utilising plant as per the following table:

Backfill	Padding Machine Excavator Grader Dozer
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	Front End Loader
Clear and Grade	Dozer Excavator Grader Backhoe Front End Loader
Ditching	Excavator Rock Saw Bucket Wheel Trencher
Hydrostatic Testing	Crane Truck Side Boom Rough Terrain Crane
Joint Coating	Grit Blasting Rig Over Ditch Wrapping Machine Thermal Coil
Lower and Lay	Side Boom with Roller Cradles Excavator
Mechanical (minor maintenance)	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	Excavator Bending Machine with Mandrels Side Boom

Welding	Side Boom Internal Line up Clamp Tack Rig
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Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**
Transmission discipline.