Australian Government

UEGNSG219A Conduct excavations in the utilities industry

Release 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEGNSG219A Conduct excavations in the utilities industry

Modification History

This unit is a revised version of the UEG11 unit UEGNSG215A Carry out transmission pipeline construction work activities

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers excavating in the utilities industry in accordance with relevant legislation, standards, codes and established procedures.

This encompasses the preparation and planning, the actual excavation and back filling. Planning includes Dial Before you Dig, site preparation and traffic control.

Application of the Unit

Application of the Unit

2)

This competency standard shall apply to any safe work site where utilities industry excavation operations occur, which includes the gas industry, electricity supply industry (transmission and distribution and generation), the electrotechnology industry and the water industry, 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 an AQF 2 competency and 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, 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 Health and Safety/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 those who can operate certain equipment. Other conditions may apply to this competency under State and Territory legislative and regulatory requirements.

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:

UEGNSG141A	Apply Workplace Health and Safety regulations, codes and practices in the gas industry
UEGNSG004A	Locate, prove and protect utility assets
UEGNSG005A	Prepare to work in the Australian gas industry

Prerequisite Unit(s) **4)**

UEGNSG132A	Carry out basic work activities in a gas industry work environment
UEGNSG140A	Apply with environmental policies and procedures in the utilities industry
UEGNSG134A	Establish a utilities infrastructure work site

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 conduct excavation work	1.1	WHS/OHS and environmental measures for the site are identified received and confirmed
	1.2	Relevant requirements and established procedures for the site are discussed with relevant persons to establish and confirm the work schedule.
	1.3	WHS/OHS, environmental and sustainable energy policies and procedures for the work are received and confirmed
	1.4	Hazards are identified and reported to the supervisor to assess the risks and implement control measures according to established procedures
	1.5	Scope of responsibility under the relevant work permit and/or relevant notification is received and confirmed with relevant persons according to requirements and established procedures
	1.6	Equipment, tools and personal protective equipment required for the work are identified, obtained and checked for correct operation and safety.
	1.7	Materials, plans, diagrams, drawings and resources required for work are confirmed and obtained in accordance with established procedures
	1.8	Relevant responsibilities associated with safety and emergency procedures for an incident at the worksite are checked and confirmed.
	1.9	Client issues are referred to appropriate persons in accordance with established procedures

ELEMENT	PERFORMANCE CRITERIA	
	1.10	Location of other services, site preparation and the work schedule are confirmed in accordance with established procedures.
	1.11	Traffic management signs, barriers and warning devices are confirmed as positioned in accordance with requirements and traffic management plans
2 Conduct excavation work	2.1	WHS/OHS risk control measures, schedule of work and standard operating procedures for carrying out the work are followed
	2.2	Appropriate materials, tools, plant and equipment are selected and used safely
	2.3	Hazardous activities such as lifting, climbing, working in confined spaces, excavations, trenches, use of power tools equipment, techniques and practices are conducted in accordance with given instructions and requirements
	2.4	Excavation work is carried out efficiently, to the required standard without waste of materials or damage to apparatus, equipment, the surrounding environment or services and using sustainable energy principles.
	2.5	WHS/OHS risks incidents and non-routine events are reported to the immediate authorised persons for directions according to established procedures
	2.6	Routine quality and safety checks are carried out in accordance with established procedures
3 Complete excavation work and relevant documentation	3.1	WHS/OHS risk control work completion measures and procedures are followed.
	3.2	Backfilling is performed, the work site is rehabilitated, tidied made safe and markers are installed or re-instated in accordance with the work schedule and established procedures
	3.3	Tools, plant, equipment and any surplus

ELEMENT	PERFORMANCE CRITERIA
	resources and materials are cleaned, checked and securely stored. .
	3.4 Appropriate persons are notified of the completion of the work in accordance with established procedures
	3.5 Work completion documentation is completed accurately and provided to appropriate persons in accordance with established procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Evidence shall show that knowledge has been acquired of safe working practices for used for underground utilities services and to carry out excavation work.

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 required is provided below. It forms an integral part of this unit.

KS01-G219A Excavation of trenches and manholes

Evidence shall show an understanding of conducting excavations in the utilities gas industry in accordance with relevant legislation, standards, codes and established procedures to an extent indicated by the following aspects:

T1. Relevant legislation, regulations, codes, policies and forms

T2. Enterprise procedures, plans and drawings

T3. Overview of relevant Safety and Environmental hazards and mitigation measures

- Hazards and Field Risk Assessments
- Electrical, gases, toxins and fumes
- Security and fall prevention
- Prevention of trench collapse
- Confined spaces awareness
- Traffic hazards
- Emergency control measures

T4. Excavation process activities and work designs

- Excavation types, steps, approval, documentation and maps
- Tools, materials and equipment for preparing the site, excavating trenches and reinstating the site
- Working in proximity to other assets
- Clearances and separations
- Spotter/competent observer requirements

T5. Excavation and shoring techniques to suit varying conditions (surface types, soil types, weather, traffic, time of day, location)

- manual excavation
- mechanical excavation
- shared trenching

T6. Basic overview of boring, drilling and non-invasive excavation machines

T7. Pipe padding/bedding, compaction, backfilling and consolidations

REQUIRED SKILLS AND KNOWLEDGE

T8. Trench and site restoration and reinstatement techniques

- Ground surface level finishes
- Asset markers and signs

T9. Temporary or permanent restorations

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 the 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 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 **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 Performance Criteria 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 Workplace Health and Safety/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 skills and knowledge 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, polices and workplace procedures
- Demonstrate performance across a representative range of contexts from the prescribed items below.
  - Conducting excavations in the utilities gas industry as described in the 9.) Range Statement and including:

Range of tools/equipment/procedures/workplace		
Group	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A. Safety resources	At least 4	• Alignment sheets, maps, technical drawings and symbols • Service locators • Gas detectors • Safety lighting • Fire fighting equipment

B. Excavation equipment/ tools	At least 4	• Small generator sets • Air Compressors and hoses • Pneumatic hammers • Rollers and compactors • Hand held concrete and ceramic cutters
C. Preparatory procedures	At least 4	• Utilise plans, drawings and maps • Utilise Dial Before You Dig information • Obtain procedures and/or work instructions • Correctly interpret and follow instructions • Conduct basic risk assessment • Utilise and participate in preparation of safe work method statement or JSA • Work in accordance with work permits/authorisations as necessary
D. Excavation procedures	At least 5	• Perform service location in the area • Check all materials and equipment • Identify and monitor all possible environmental hazards • Utilise control measures for identified hazards • Correct use of PPE appropriate to the Gas Industry • Carry out excavation • Perform machinery daily log checks and verify operator qualifications

E. Traffic control procedures	At least 3	• Traffic control management • Erect barricades • Layout warning and safety signs • Identify muster point where appropriate • Complete permit, if required
F Unplanned events	At least one occasion	Respond to 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 **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:

- WHS/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.

These should be part of the formal learning/assessment environment.

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.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and

replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to locating, proving and protecting utility assets.

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 Skills and Knowledge 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 skills and knowledge 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.

UEGNSG132A	Carry out work activities in a gas industry work environment
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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 must be demonstrated in relation to excavations in the utilities industry in accordance with relevant legislation, standards, codes and established procedures autonomously on at least two occasions. This includes the preparation, planning, excavation and back filling.

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:

- Legislation
- Inspection
- Hand tools
- Power tools
- Plant and equipment
- Personal Protective Equipment
- WHS/OHS requirements
- Types of drawings
- Key features of site plans
- Key features of plans and elevations
- Types of structures
- Services
- Types of details
- Environmental features
- Orientation of the site
- Excavation tools
- Excavation
- Surface reinstatements
- Backfill

Unit Sector(s)

Utilities Industry

Competency Field

Competency Field **11)**

Transmission and Distribution.