



Australian Government

Department of Education, Employment and Workplace Relations

NWP302A Install meters for non-potable, non-urban water supplies

Revision Number: 2

NWP302A Install meters for non-potable, non-urban water supplies

Modification History

NWP302A Release 2: Layout adjusted. No changes to content.

NWP302A Release 1: Primary release.

Unit Descriptor

This unit covers the competency required to install water meters for non-potable water allocation in non-urban water systems.

Application of the Unit

This unit of competency forms part of a skill set for meter installation and has application for the certification of water meter installers.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where <i>bold italicised</i> text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Confirm conditions of the site for meter installation.	1.1 Identify the location of the site and establish <i>client information</i> .
	1.2 Identify access to the site and any <i>conditions of access</i> .
	1.3 Test the <i>conditions of the site</i> and analyse impact on installation assets.
	1.4 Complete an <i>environmental impact statement</i> for the site.
	1.5 Carry out a <i>job safety analysis</i> and identify hazards and control measures.
2 Set out the site.	2.1 Locate and install temporary benchmark.
	2.2 Store and secure material and equipment on site.
	2.3 Calculate and mark the site perimeters in relation to the flow of the channel.
	2.4 Ensure that excavations provide sufficient width for <i>movements of installation</i> .
3 Install meter facilities.	3.1 Install sumps and headwalls to ensure correct elevation, orientation and horizontal and vertical levels.
	3.2 Install pipes and meter pits to ensure the correct elevation, fall and orientation.
	3.3 Check pipe fittings and seals and eliminate flow disturbance.
	3.4 Install solar panels and display units according to manufacturers' requirements, check for operation and seal.
4 Install meters.	4.1 Install meters in meter pits according to manufacturers' requirements.
	4.2 Fit meters according to manufacturers' requirements.
	4.3 Align flanges, gaskets and internal pipe walls to eliminated flow disturbance and leaks.
	4.4 Locate and support meters to protect them from traffic and vibration.
5 Restore site.	5.1 Backfill upstream and downstream sumps with suitable material, moisture content and compaction to maximize compaction efficiency.
	5.2 Restore the site to closest to original site conditions.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills:

- meter installation construction project planning
- calculation of head, flow and measurements of pipes and pressure
- undertake locational assessment and risk analysis for meter installation
- sample and test soil for backfill and installation structures
- analyse the impact of water infiltration on the stability of structures
- measure the head of water to judge sufficiency for meter's accuracy
- check power supply and links
- position solar panels to maximise power collection
- undertake a job safety analysis and checking hazards and safety requirements
- store and safe use of equipment on site
- determine excavation requirements
- calculate sump and headwall elevation and orientation
- calculate pipe and meter pit elevation, fall and presentation.
- install transducers and cabling safely
- interpret manufacturers' requirements for fitting meters in meter pits
- use techniques to protect meters from disturbance
- assess the effectiveness of backfill
- undertake site restoration

Required knowledge:

- the purpose and standards for non-urban water metering.
- community expectations for water measurement and use
- standards for the installation of non-urban meters in open and closed conduit systems
- the social, environmental, economic and political responsibilities of water authorities in relation to meter installation
- requirements for checking the pattern approval of meters
- requirements for compliance with meter installation standards
- meter manufacturers guidelines and installation manual for specific meters
- the organisation's policies and procedures for water meter installation
- conditions for meter location and suitable installation assets and meters for the conditions
- causes of flow disturbance
- potential environmental causes of meter failure
- the organisation's environmental impact guidelines
- maintenance requirements for meter facility within and open channel
- relevant safety requirements including confined space

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The candidate should demonstrate the ability to install meters for non-potable, non-urban water supplies including:

- identifying and analysing client requirements, site conditions and their impact on the types of meter required, and the design of the installation
- identifying and analysing environmental conditions and limitations and the impact of work to be undertaken
- identifying and analysing safety risks and hazards and responding to remove risks and hazards
- preparing sites and equipment for installation
- installing meter facilities using site specific requirements
- installing meters according to client and manufacturers' requirements and conditions
- identifying faults, changes and failure indicators
- restoring sites to original conditions

Context of and specific resources for assessment

Access to the workplace and resources including:

- documentation that should normally be available in a water industry organisation
- relevant codes, standards, and government regulations

Where applicable, physical resources should include equipment modified for people with disabilities.

Access must be provided to appropriate learning and/or assessment support when required.

Assessment processes and techniques must be culturally appropriate, and appropriate to the language and literacy capacity of the candidate and the work being performed.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice
- a decision of competence should only be made when the assessor has complete confidence in the person's competence over time and in various contexts

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
- where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
- assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit

In all cases where practical assessment is used it will be combined with targeted questioning or examination to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the skill levels of the operator, any cultural issues that may affect responses to the questions, and reflecting the requirements of the competency and the work being performed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

- Client information*** will include:
- landowner details
 - GPS coordinates
 - identification of the supply channel
 - running distance from validated point on the channel
 - discharge point
- Conditions of access*** will include:
- suitability of existing access
 - landowner conditions
 - stock safety
 - vehicle and driver safety
- Conditions of the site*** will include:
- soil sampling and testing
 - water infiltration
 - compaction of backfill
 - suitability of source head for accuracy
 - power supply
 - communication links
- Environmental impact statement*** will include:
- water
 - air
 - soil
 - vegetation
 - fauna
 - cultural and heritage
- Job safety analysis*** will include:
- personal protective equipment
 - safe access
 - confined space requirements
 - safe use of machinery and equipment
 - level of risk of hazards
 - adjustments to control hazards
- Movements of installation*** will include:
- protect from collapse
 - correct depth
 - sufficient compaction

Unit Sector(s)

Not applicable.

Competency field

Collection and distribution.