



Australian Government

Department of Education, Employment and Workplace Relations

NWP304A Maintain meters for non-potable, non-urban water supplies

Revision Number: 2

NWP304A Maintain meters for non-potable, non-urban water supplies

Modification History

NWP304A Release 2: Layout adjusted. No changes to content.

NWP304A Release 1: Primary release.

Unit Descriptor

This unit describes the skills and knowledge required for the maintenance of water meters in open and closed conduit, for non-potable water allocation in non-urban water systems. No licensing, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

This unit covers the maintenance of the operational integrity of already installed meters, metering systems and their components. This unit covers corrective, predictive and preventative maintenance.

This unit does not cover replacement of the meter itself, or other significant components such as pipes, sumps and emplacements; capital works/asset replacement or tasks that use skills required for complex installations.

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 required performance needed to demonstrate achievement of the element. Where ***bold italicised*** 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 meter type and location within asset management system.	1.1 Obtain organisational maintenance plan and manufacturers guidelines, where available. 1.2 Locate meter <i>emplacement</i> on a map or by GPS or according to organisational procedures. 1.3 Confirm that <i>meter type</i> matches maintenance plan or manufacturer's guidelines. 1.4 Confirm that meter number matches maintenance plan.
2 Check condition of meters and metering system.	2.1 Identify <i>faults</i> using an <i>asset condition checklist</i> . 2.2 Establish maintenance requirements. 2.3 Check for hydraulic disturbances. 2.4 Check condition of battery and charging system. 2.5 Perform in situ test of meter as applicable.
3 Maintain meter and meter facilities.	3.1 <i>Rectify</i> faults in <i>components</i> , according to organisational guidelines. 3.2 Identify faults which need to be rectified by a third party, according to organisational guidelines.
4 Test and recommission.	4.1 Ensure meter complies with standards. 4.2 Perform in situ re-test of meter as applicable. 4.3 Replace seals and tags. 4.4 <i>Record faults</i> and meter performance, maintenance and repairs according to <i>organisational procedures</i> and <i>statutory requirements</i> .

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- reading and analysis of an electronic display
- input of data into electronic controller
- working with low voltage wiring
- reading manufacturer's instructions, plans, exploded drawings, parts catalogues
- reading verification marks
- appropriate use of tags and seals

Required knowledge:

- organisational policies and procedures for water meter maintenance
- organisational rights and responsibilities
- manufacturers maintenance procedures for specific meter types
- knowledge of checking pattern approval requirements (NMI)
- standards for non-urban metering (ATS 4747)
- manufacturers maintenance guidelines
- GPS
- meter types and accuracy limits
- head
- water quality
- flow rates
- roles and responsibilities of maintenance personnel
- OHS guidelines
- environmental, cultural and heritage guidelines

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

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

Evidence of the following is essential:

- confirms the site and the meter
- checks meter condition
- replaces components as required
- documents the maintenance

Context of and specific resources for assessment

Assessment must ensure:

- access to a range of meters and installation sites
- access to organisational documentation
- observance of OHS guidelines

A range of assessment methods should be used to assess knowledge. The following examples are appropriate for this unit:

- written questions
- oral questions on the job during the maintenance process
- written reports including asset condition checklist, meter condition report
- third party reports from workplace supervisors

A range of assessment methods should be used to assess skills. The following examples are appropriate for this unit:

- demonstrations of meter maintenance in a workplace environment
- written Reports including asset condition checklist, meter condition report
- third party reports from workplace supervisors

Assessment should be based on evidence which has been gathered from a number of meter installations in a range of conditions which reflect a predictable variety of routine requirements and the range of variables, as well as which allow the potential for applying knowledge and skills in some conditions which require problem solving and contingency responses.

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 only taken at the point 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 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. Add any 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.

- Emplacement*** may include:
- sumps, pipes, civil structures
 - pits, concrete structures
- Meter type*** may include:
- electromagnetic
 - ultrasonic (Doppler, transit time)
 - mechanical meters (propeller actuated, turbine)
 - systems of automated or manually operated weirs and gates with flow measurement capability
 - open channel flumes and thin-plate weirs
 - channel or stream gauging emplacements
- Faults*** may include:
- weeds and other obstructing materials
 - dirty solar panels
 - blockages and leakages of pipes and channels
 - leaking/seeping channel banks
 - animal infestations (wasp nests, ants and spider webs, bird nests, yabbies)
 - electrical interference
 - distortion of pipes
 - flow disturbance factors
- Asset condition checklist*** may include:
- visual clues - leaks, breaks, seals, vandalism or tampering, wiring, tags and verification marks
 - validated third-party reports
 - display outputs - fault codes
 - erratic or inconsistent data readings
 - water quality, water flow (flow rate and full pipe)
 - operating parameters of the emplacement & meter (eg full flowing or partially full; operating range with respect to flows)
 - electrical interference
 - check of security seals
- Rectify*** may include:
- unblocking/ desilting
 - ensuring flanges etc are tight
 - replacing components according to organisational guidelines
- Components*** may include:
- sensors
 - chips
 - cogs

- spindles
- transducers
- outputs
- probes
- connectors
- wiring
- seals & guides (doors & valves)
- actuation system
- chargers & batteries

Record faults may include:

- asset condition checklist
- meter condition report

***Organisational procedures
and statutory requirements***
may include:

- maintenance plan
- manufacturers guidelines
- Australian Technical Standards

Unit Sector(s)

Not applicable.