



Australian Government

Department of Education, Employment and Workplace Relations

NWP216B Install basic metering equipment and flow control devices for irrigation systems

Release: 2

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Modification History

NWP216B Release 2: Layout adjusted. No changes to content.

NWP216B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to install meters, flow control and regulating devices for irrigation systems. These installations may occur in ground and surface water source irrigation systems.

Application of the Unit

This unit supports the attainment of skills and knowledge required for field and operational staff involved in the accurate installation of key water industry metering and flow control devices.

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 <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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare work.	1.1 Apply work requirements for installation of <i>flow control and metering devices</i> in irrigation systems from plans, specifications and instructions. 1.2 Prepare work plans to ensure safety within the workplace. 1.3 Select and check <i>equipment and tools</i> to meet safety requirements of the task and site. 1.4 Select, fit and use personal protective equipment.
2 Install flow control devices in irrigation systems.	2.1 Carry out installation of flow control devices in irrigation systems according to manufacturer guidelines and <i>legislative and organisational requirements</i>. 2.2 Check that installed flow control devices meet specifications.
3 Install metering devices in irrigation systems.	3.1 Carry out installation of flow metering devices in irrigation systems according to manufacturer guidelines and legislative and organisational requirements. 3.2 Check that installed metering devices meet specifications.
4 Maintain flow control and metering devices in irrigation systems.	4.1 Carry out routine inspections of flow control and metering facilities in irrigation systems according to organisational procedures. 4.2 Carry out preventative maintenance and service of equipment and facilities according to manufacturer guidelines and organisational requirements.
5 Review, record and report activities.	5.1 Check, maintain and store equipment, tools and materials according to manufacturer guidelines and organisational procedures. 5.2 Restore work site to meet environmental and organisational requirements. 5.3 Record and report activities according to organisational procedures.

Required Skills and Knowledge

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

Required skills:

- identify and respond to operational problems
- produce reports and logs
- operate communications equipment
- follow plans, charts and instructions
- perform work-related calculations
- follow procedures and standards
- use safety equipment and personal protective equipment
- communicate with customers and other employees
- work effectively as part of a team
- install flow control devices
- install metering devices
- use literacy skills in regard to verbal and written communication in the workplace
- identify control system or metering faults

Required knowledge:

- impact of the principles of hydraulics on the operation of flows
- system layout
- lock-out procedures for mechanical and electrical installations
- organisational communication systems
- effective workplace communication processes
- materials handling
- environmental, landscape and ground structure of work area
- risk factors and potential hazards
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of system, site and plant
- flow measurement principles and procedures
- layout and performance of pipes and fittings
- operation of control systems

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

The candidate should demonstrate the ability to install meters, flow control and regulating devices for irrigation systems:

- planning and preparing the installation of flow control and metering devices
- interpreting plans, specifications and instructions for installation of flow control devices
- interpreting plans, specifications and instructions for installation of basic metering devices
- conducting routine inspections, maintenance and servicing of basic metering, flow control and regulating devices
- completing relevant workplace documentation

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 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 and cultural issues that may affect responses to the questions, and will reflect 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.

Flow control and metering devices may include:

- flow directional gates
- regulators
- pumping systems, including:
 - centrifugal
 - Archimedes screw type
 - submersible
 - positive displacement
- valving systems, including:
 - sluice
 - gate
 - blade
 - non-return
- doors, drop structures and bars
- electronic monitoring and metering systems
- mechanical flow usage meters
- Dethridge-type wheels

Equipment and tools used may include:

- hand and power tools
- on- and off-road vehicles
- lifting and winching equipment
- mechanical excavation equipment
- chemical spraying apparatus
- small marine craft
- personal protective equipment

Legislative and organisational requirements may include:

- relevant federal and state or territory legislation and regulations
- codes of practice, associated standards and guidance material
- documented organisational policies, manuals and induction programs
- relevant community planning and development agreements, such as land care agreements

Unit Sector(s)

Not applicable.