



Australian Government

Department of Education, Employment and Workplace Relations

NWP339B Perform leak detection

Revision Number: 2

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Modification History

NWP339B Release 2: Layout adjusted. No changes to content.
NWP339B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to plan leak detection activities and to locate, identify and report leaks in water distribution networks (pressure mains).

Application of the Unit

This unit supports the attainment of skills and knowledge required for field staff with a specific responsibility for planning and implementing leak detection activities according to organisational and statutory requirements.

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 for leak detection.	1.1 Determine work site boundaries and <i>leak detection requirements</i> from plans, specifications and instructions. 1.2 Select and check <i>equipment</i> according to <i>organisational and statutory requirements</i>. 1.3 Use site inspection and service search diagrams according to work site requirements.
2 Operate leak detection equipment.	2.1 Determine and mark work site boundaries from plans and service search diagrams. 2.2 Select, fit and correctly use personal protective equipment. 2.3 Operate leak detection equipment according to organisational and statutory requirements. 2.4 Mark the location of leaks according to organisational requirements. 2.5 Expose leaks and arrange repair according to testing outcomes and organisational and statutory requirements.
3 Review, record and report work.	3.1 Review and record work according to organisational requirements. 3.2 Compile reports according to organisational requirements.

Required Skills and Knowledge

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

Required skills:

- use leak detection equipment
- identify and correct problems
- regulate systems and flows
- use basic mathematics for calculation and measurement
- collect data
- analyse data to take remedial action
- produce reports and logs
- use safety and personal protective equipment
- use tools and machinery
- interpret plans, specifications, policies and procedures
- provide maintenance records for equipment
- communicate with employees, other service providers and customers
- use communication systems
- give and receive instructions
- identify safety risks and hazards

Required knowledge:

- identification and repair procedures
- system hydraulics
- system layout
- environmental aspects
- lock out procedures for mechanical and electrical installations
- relevant utilities and service bodies
- communication systems
- landscape and ground structure of work area
- risk assessment and the identification of potential hazards
- equipment operation, capacity and limitations
- effects of weather and conditions on site or plant

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 plan leak detection activities and to locate, identify and report leaks in water distribution networks including:

- planning leak detection activities
- operating leak detection equipment safely
- locating and marking leaks and arranging repair activities
- completing 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/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 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.

Leak detection requirements may include:

- location of leaks in pipes, including:
 - polyvinyl chloride (PVC)
 - reinforced concrete
 - polyethylene
 - cast iron cement lined
 - ductile iron cement lined
 - asbestos cement
 - mild steel cement lined
- location of leaks in fittings, including:
 - jointing systems for pipe types e.g. gibault
 - tension bands
 - solvent cement joints
 - compression ring joints
 - bolted flanges
 - cathodic protection
 - electrofusion
 - butt-welding
- location of leaks in structures, including:
 - meter pits
 - valve pits
 - drop structures
 - regulators
 - erosion barriers
 - head walls
 - thrust blocks,
 - inspection shafts
- regulation of flow and pressure, including:
 - the adjustment of pumping systems
 - valving systems
 - gravity flow systems
 - service reservoirs
 - electronic and manual control systems.

Equipment used may

- leak detection equipment

include:

- pipe and cable locating equipment
- hand and power tools
- lifting equipment
- mechanical excavation equipment
- pneumatic and motorised equipment e.g. compressors, pneumatic spades and attachments
- motorised cutting equipment
- on- and off-road vehicles
- portable pumps
- communication systems
- gas detection equipment
- rescue equipment
- appropriate personal protective equipment

Organisational and statutory requirements may include:

- by-laws or organisational policies
- procedures
- environment protection
- occupational health and safety
- mines and subsidence
- road signage
- electrical safety
- dangerous goods
- manufacturer's guidelines

Unit Sector(s)

Not applicable.

Competency field

Collection and distribution.