



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG411A Construct and install a low volume irrigation system

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This Unit covers the process of constructing and installing a low volume irrigation system and defines the standard required to: establish the requirements of the system; implement operational procedures for the project; establish and organise resources; supervise on-site construction; and commission the system.

Application of the Unit

This Unit applies to irrigation site supervisors and installation project managers who are responsible for the construction and installation of low volume irrigation systems.

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 bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Develop and implement construction procedures	1.1 Employment procedures and contract management procedures are developed 1.2 Procedures for controlling and recording site deliveries are established 1.3 Procedures for recording the hire of plant and equipment are determined 1.4 OHS procedures are established, including risk assessment 1.5 Client, authorities and agencies are notified of the schedule of works 1.6 Procedures for dealing with environmental issues associated with construction work are determined
2 Interpret the <i>low volume irrigation system</i> design for the site	2.1 The purpose, scale and required output of the irrigation system is determined 2.2 The landscape of the site is assessed 2.3 Construction requirements are determined and verified with the designer 2.4 Components are selected to meet design specifications and site requirements
3 Organise resource requirements	3.1 Tasks and timelines are nominated with resources required for each 3.2 Labour requirements are organised 3.3 Parts and equipment are delivered to the site and checked 3.4 Equipment and machinery is selected and maintained 3.5 Jobs and tasks are allocated to the work team 3.6 Safety induction is carried out for the task and site
4 Supervise installation and construction	4.1 The site is prepared and set out 4.2 The main lateral line is laid out 4.3 Submains and flushing manifold are inserted 4.4 Risers, emitters and other components are installed
5 Complete installation work and test components	5.1 Water supply is connected 5.2 Emitters are checked for optimal coverage and efficiency 5.3 Valves are set to allow water to targeted areas 5.4 The low volume system is started up and flushed 5.5 Measuring devices and controllers are attached to the system
6 Commission system	6.1 Operating faults are identified and corrective actions taken to meet design specifications 6.2 Testing/monitoring equipment is calibrated to manufacturer's specifications 6.3 Test procedures are carried out and recorded 6.4 System is handed over operating in accordance with design specifications

Required Skills and Knowledge

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

Required skills include:

Ability to:

- interpret irrigation designs
- develop operational procedures
- implement employment procedures
- conduct OHS risk assessment
- supervising installation tasks:
 - set out and prepare site
 - lay out and mark lateral location
 - inserting submains and flushing manifold
 - inserting risers and emitters
 - install irrigation components
 - complete installation work and test components
 - checking and cleaning backwash filter
 - start-up procedures
 - checking and cleaning backwash filter
 - operating specifications for pressures and flow rates
 - setting up irrigation controllers
- use literacy skills to read, interpret and follow organisational policies and procedures, develop sequenced written instructions, record accurately and legibly information collected and select and apply procedures to a range of tasks
- use oral communication skills/language competence to fulfil the job role as specified by the organisation including questioning, active listening, asking for clarification, negotiating solutions and responding to a wide range of views
- use interpersonal skills to work with others and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities.

Required knowledge includes:

Knowledge of:

- characteristics and operation of joints, valves and sprinkler components
- water quality and water filtration techniques
- calculations for installing low volume irrigation systems
- behaviour of water on varying terrain and soil types
- distribution uniformity
- soil water retention testing techniques
- volume and pressure requirements
- pump capacity

- types of pumps and water flow rates
- start-up procedures
- operating specifications for pressures and flow rates
- setting up irrigation controllers
- setting up fertigation equipment
- commissioning procedures
- employment procedures
- project management principles
- design interpretation
- safe work practices for construction
- licensing requirements for electrical work.

Evidence Guide

<p>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.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this Unit	<p>The evidence required to demonstrate competency in this Unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following:</p> <ul style="list-style-type: none"> • establish the requirements of the system • implement operational procedures for the project • establish and organise resources • supervise on-site construction • commission the system.
Context of and specific resources for assessment	<p>Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.</p>

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.

<i>Low volume irrigation systems</i> may include:	any systems that operate under comparatively low volume and pressure including micro irrigation, pop-ups at less than 0.1 litres/second, and drippers.
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Unit Sector(s)

Irrigation