



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG414A Construct and install a surface irrigation system

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This Unit covers the process of constructing and installing a surface 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 surface 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>surface 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 Trenches are excavated to specifications 4.2 Earth works are carried out 4.3 Bay outlets and gates are constructed 4.4 Pipes are laid and joined 4.5 Fittings and valves are fitted and adjusted to the requirements of the installation plan, and all joints are secured according to enterprise guidelines 4.6 Pumping system is installed and tested
5 Complete installation work and test components	5.1 System is checked for water movement and volume 5.2 Measuring devices and controllers are attached to the system
6 Commission system	6.1 The system is started up and flushed 6.2 Valves are set allowing for water to targeted areas 6.3 Operating faults are identified and corrective actions taken to meet design specifications 6.4 Testing/monitoring equipment is calibrated to manufacturer's specifications

6.5 Adjustments are made as required

6.6 The system is handed over in compliance 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
- supervise workers in:
 - earth moving and construction procedures
 - power and pumping plant installation
 - pump and gated pipe installation
 - construction of canals, channels, head ditches, beds, check structures, tailwater holding ponds
- estimate quantities and volumes of soil to be moved
- document requirements for structures
- 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 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:

- water quality and water filtration techniques
- site preparation and construction procedures
- calculations for installing surface irrigation systems
- behaviour of water on varying terrain and soil types
- soil water retention testing techniques
- organising equipment and materials for installation work
- water quality and water filtration techniques
- labour requirements and management
- irrigation system components and operating specifications
- environmental impacts of surface irrigation
- OHS legislation and safe work procedures.

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.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this Unit	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: • 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	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.

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>Surface irrigation systems</i> may include:	any systems that apply water across the surface of a levelled or contoured area. These include furrow, border and basin irrigation.

Unit Sector(s)

Irrigation