



Australian Government

AHCIRG301 Install gravity fed irrigation systems

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to install gravity fed irrigation systems.

The unit applies to individuals who install gravity fed irrigation systems under broad direction and take responsibility for their own work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Irrigation (IRG)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Organise resources for installation work	1.1 Interpret plan, including identifying potential hazards and risks and implementing safe working practices to manage risks 1.2 Select and use required materials, tools equipment and machinery and check for safe operations 1.3 Select, fit, use and maintain safety and personal protective equipment applicable to the task 1.4 Check water supply is compatible with system specifications

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
2. Set out and prepare site	2.1 Measure and mark out structures and peg earthworks 2.2 Prepare and maintain beds, diversion and conveyancing structures 2.3 Install diversion and conveyancing structures, channels and beds 2.4 Prepare bed surface using roto-buck 2.5 Test structures for configuration, flow rates and capacity
3. Complete water measurement and tail-water works	3.1 Install water measurement structures 3.2 Install channels and tail water storages 3.3 Install pumping equipment, lines and filters 3.4 Confirm that the system configuration and capacity matches the installation plan 3.5 Complete earthworks and structures according to plan
4. Operate pumps and siphons	4.1 Prime pumps and open or close valves and controls 4.2 Position and set up pipes, system equipment and outlets 4.3 Prime and start siphons and other delivery mechanisms 4.4 Implement start up sequence and slowly build up water levels and pressure 4.5 Check pressure at the head-works and control valves 4.6 Distribute water evenly to the targeted areas with minimal wastage and run-off 4.7 Irrigate area and observe time lag between shut down and end of watering to minimise run-off and deep percolation
5. Measure and interpret water levels, flow rates and volume of water used	5.1 Monitor and maintain head water levels 5.2 Confirm that all water outlets are operating correctly 5.3 Replace or clear blocked inlets and outlets 5.4 Measure and record flow rates and water usage 5.5 Implement irrigation changes as required

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret textual information from a range of sources to identify relevant and key information about workplace operations
Oral communication	Initiate discussions with supervisor using clear language to report installation activities and communicate blockages
Numeracy skills	- Calculate measurements for structures against specifications - Calculate ratios and percentages for water levels, flow rates and usage
Navigate the world of work	Recognise and follow workplace requirements, including safety requirements, associated with own role and area of responsibility
Interact with others	Use appropriate language and communication skills to disseminate information about system damage and blockages

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCIRG301 Install gravity fed irrigation systems	Not applicable	New unit	No equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCIRG301 Install gravity fed irrigation systems

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has installed a gravity fed irrigation system on at least one occasion and has:

- applied workplace health and safety requirements
- selected materials, tools, equipment and machinery appropriate to the scope of works
- built and maintained irrigation structures, channels and beds
- prepared irrigation beds
- used roto-buck for bed preparation
- measured water usage
- installed pumps and pipelines
- performed system commissioning tasks
- adjusted and monitored check valves
- start and moved siphons and spiles and checked flow
- start up the system
- checked pressure at the head works and control valves
- identified variations in water flow and distribution.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- workplace requirements applicable to health and safety in the workplace for installing gravity fed irrigation systems
- machinery operation and maintenance manual
- calculations for installing surface irrigation systems
- behaviour of water on varying terrain and soil types
- soil characteristics applicable to water retention and infiltration

- soil water retention testing techniques
- water quality and water filtration techniques
- gravity fed irrigation system components and operation.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - a workplace setting or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - gravity fed irrigation system materials, tools equipment and machinery
 - gravity fed irrigation pump system tools and equipment and manual
 - personal protective equipment applicable to installing gravity fed irrigation systems
- specifications:
 - work instructions and workplace procedures applicable to installing gravity fed irrigation systems
 - workplace requirements applicable to health and safety in the workplace and installing gravity fed irrigation systems
 - machinery operation and maintenance manual
- timeframes:
 - according to job requirements.

Assessors of this unit must satisfy the requirements of assessors in applicable vocational education and training, legislation, frameworks and/or standards.

Links

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