



Australian Government

AHCIRG348 Operate and maintain moving irrigation system

Release: 1

AHCIRG348 Operate and maintain moving irrigation system

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 covers the skills and knowledge required to install, operate and maintain moving irrigation systems.

The unit applies to individuals who operate and maintain moving 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. Install a moving sprinkler irrigation system	1.1 Confirm activity to be undertaken, including identifying potential hazards and risks and implementing safe working practices to manage risks 1.2 Select and use required materials, tools and equipment and check for safe operations 1.3 Select, fit, use and maintain safety and personal protective equipment applicable to the task 1.4 Join span pipes with correctly tensioned bolts to 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>
	1.5 Connect V-jack trusses in sequence to bow the span 1.6 Connect goose necks and hose connectors 1.7 Fit pre-cut drop hoses and connect sprinklers
2. Complete assembly of moving sprinkler components	2.1 Assemble sprinklers, pressure regulators and hose directors to specifications 2.2 Fit gear box and control panel 2.3 Fit and tension wheels
3. Commission a moving sprinkler irrigation system	3.1 Connect and start pumping system and flush as required 3.2 Calibrate testing and monitoring equipment according to operation and maintenance manual and manufacturer specifications
4. Operate the system	4.1 Prime pumps, open or close valves and controls and begin the start-up sequence 4.2 Check emitter spacing 4.3 Monitor and service transport mechanism 4.4 Check irrigation controller for programming and efficiency 4.5 Correct or repair all malfunctions, leaks and blockages
5. Monitor irrigation operation	5.1 Implement irrigation schedule and monitor soil profile for wetting 5.2 Measure sprinkler performance using catch cans 5.3 Measure flow rates using containers of known volume 5.4 Measure operating pressures using pressure gauges 5.5 Check irrigated area for wheel ruts and other signs of waterlogging
6. Carry out system maintenance	6.1 Record damage and blockages with contaminants by damage type, location and the section of the system affected 6.2 Record and report damaged or faulty pumps, valves, sprinklers, electrical components and computer control systems and take action to effect repairs 6.3 Measure outlet pressure, flow rate and energy use and record 6.4 Inspect and maintain drive mechanism, frames and trusses 6.5 Implement end of season maintenance procedures 6.6 Implement routine and preventative maintenance procedures

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	6.7 Implement storage procedures for irrigation components
7. Shut down the system in response to irrigation indicators	7.1 Apply water for sufficient time to achieve required soil moisture levels and allowing for weather conditions 7.2 Shut down system components and drain 7.3 Check drainage and treatment systems 7.4 Record and report irrigation activities according to workplace recording procedures

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
Writing	Use correct terminology to document moving irrigation system damage and blockages, and irrigation activities
Oral communication	Initiate discussions with supervisor using clear language to communicate damage and blockages and report irrigation activities
Numeracy skills	- Interpret testing equipment estimate of sprinkler performance, water flow rates and pressures - Interpret testing equipment estimate of outlet pressure, flow rate and energy use
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
AHCIRG348 Operate and maintain moving irrigation system	AHCIRG335 Operate and maintain moving irrigation system	Performance criteria clarified Foundation skills added Assessment requirements updated	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 AHCIRG348 Operate and maintain moving irrigation system

Modification History

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

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 operated and maintained a moving irrigation system on at least one occasion and has:

- applied workplace health and safety requirements
- selected materials, tools and equipment appropriate to the scope of works
- checked all bolts for correct torques
- tensioned span pipes with V-jack trusses
- fitted control panel and wheels
- started-up system and carried out operational checks
- checked injection pump and safety equipment operation
- read and followed operations manuals and irrigation schedules
- used control systems
- monitored system effectiveness
- checked for malfunctioning sprinklers
- measured and interpreted flow rates and pressures
- operated pressure and flow testing equipment
- taken and recorded measurements of output and efficiency
- greased drive shafts on pump and motor
- inspected lift base and arms for any stress marks or cracks
- changed engine oil and filter
- completed regular and end of season maintenance tasks
- shut down, cleaned equipment and disposed of waste
- recorded and reported irrigation activities.

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 operating and maintaining moving irrigation systems
- installation and maintenance requirements of moving sprinkler irrigation systems
- pumps used in moving sprinkler irrigation systems and their operation
- calibration and testing equipment operation and maintenance manual and manufacturer specifications
- behaviour of water on varying terrain and soil types
- monitoring soil compaction and drainage
- soil water retention testing techniques
- soil, plant and water relationships
- water quality and water filtration techniques
- water requirements of plants and crops consistent with sound environmental management
- shutdown sequence.

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:
 - moving irrigation system materials, tools and equipment
 - relevant moving irrigation systems equipment
 - personal protective equipment applicable to operating and maintaining moving irrigation systems
- specifications:
 - work instructions and workplace procedures applicable to operating and maintaining moving irrigation systems
 - workplace requirements applicable to health and safety in the workplace and operating and maintaining moving irrigation systems
 - calibration and testing equipment operation and maintenance manual and manufacturer specifications
 - recording procedures
- 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

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