



Australian Government

AHCIRG440 Manage a moving sprinkler irrigation system

Release: 1

AHCIRG440 Manage a moving sprinkler irrigation system

Modification History

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

Application

This unit of competency describes the skills and knowledge required to prepare a moving sprinkler irrigation system for operation, develop and implement start-up, shutdown and isolation procedures, trouble shoot for faults and blockages, and measure and review moving sprinkler irrigation system performance.

The unit applies to individuals who apply specialised skills and knowledge to the management of moving sprinkler irrigation systems and have responsibility for the output of others. This includes applying and communicating non-routine technical solutions to predictable and unpredictable problems.

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. Ensure the moving sprinkler irrigation system is prepared for operation	1.1 Assess staff training needs for carrying out pre-start checks and routine servicing and arrange training for those that require it 1.2 Program or adjust the irrigation controller to meet the required schedule 1.3 Develop pre-start procedures for adjusting valves and checking

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	filters and emitters
2. Develop and implement start up and shut down procedures	2.1 Develop start up procedures 2.2 Develop shut down sequence and isolation procedures 2.3 Install safety or security lock off devices and signage 2.4 Provide instructions for flushing the system as required
3. Carry out trouble shooting for faults and blockages	3.1 Arrange access to faulty components and blockages 3.2 Remove faulty system components and repair or dispose of according to operation and maintenance manual and workplace environmental procedures 3.3 Select and install replacement components according to operation and maintenance manual
4. Measure performance of a moving sprinkler irrigation system	4.1 Identify and record variations in pressures 4.2 Measure and record water flow rates according to workplace procedures 4.3 Identify and record variations in water flow and distribution 4.4 Measure and record pump performance parameters as necessary 4.5 Measure and record variations in pump performance parameters where relevant 4.6 Inspect distribution and delivery systems 4.7 Identify and repair system malfunctions and record actions 4.8 Identify and record factors external to the system that may cause interference
5. Review system performance status	5.1 Record system pressures and variations 5.2 Record system flow rates and variations 5.3 Calculate and record distribution uniformity and mean application rates 5.4 Determine and record watering depth 5.5 Calculate and compare energy use and water efficiency to industry benchmarks

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	Identify and interpret information regarding managing moving sprinkler irrigation systems
Navigate the world of work	Identify and describe own workplace requirements, including safety requirements, associated with own role and area of responsibility
Writing	Use clear language, accurate industry terminology and logical structure to prepare water test results

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCIRG440 Manage a moving sprinkler irrigation system	AHCIRG422 Manage a moving sprinkler 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 AHCIRG440 Manage a moving sprinkler irrigation system

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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 managed a moving sprinkler irrigation system on at least two occasions and has:

- developed and supervised procedures for moving sprinkler irrigation system, including:
 - pre-start valve adjustment, and filter and emitter checking
 - start up
 - shutdown
 - isolation
 - system flushing
- removed and installed system components according to operation and maintenance manual and workplace environmental procedures
- identified adverse environmental impacts of irrigation activities and taken appropriate remedial action
- measured, interpreted and adjusted flow rates and pressures
- monitored and recorded system effectiveness, including:
 - application rates
 - depth of irrigation
 - infiltration and runoff
 - irrigation times
 - pressure variations and blockages
 - salinity levels and water quality
 - soil moisture levels
 - sprinkler coverage and output
- measured and recorded output and efficiency of an irrigation system
- used records to review an irrigation system.

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:

- irrigation schedules
- general irrigation methods for moving sprinkler systems
- main components of moving sprinkler irrigation systems
- best practices for reducing environmental impacts of irrigation
- component specifications
- environmental hazards of runoff and compaction
- environmental impacts of irrigation using water from any ground or underground source
- moving sprinkler irrigation technologies
- moving sprinkler and travelling mechanism operation and maintenance manual servicing and maintenance procedures
- critical measures for moisture availability, including:
 - field capacity
 - readily available water
 - wilting point
- soil compaction and drainage monitoring
- soil moisture testing techniques
- soil, plant and water relationships
- water requirements of plants and crops consistent with sound environmental management
- pump types used in moving sprinkler irrigation systems and their output and efficiency ratings
- pump types used in moving sprinkler irrigation systems and their operation
- energy efficiency indicators and benchmarks for moving sprinkler irrigation, including:
 - application efficiency
 - average application rate
 - instantaneous application rate
- physical soil characteristics, including:
 - infiltration rate
 - water holding capacity
 - wetted volume in the root zone.

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 sprinkler irrigation system equipment and tools
 - moving sprinkler irrigation system measuring, and recording equipment and manual

- specifications:
 - moving sprinkler and travelling mechanism operation and maintenance manual
 - environmental procedures applicable to moving sprinkler irrigation systems
 - industry energy and water efficiency benchmarks
- timeframes:
 - according to the job requirements
- relationships:
 - staff members.

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

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