



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG323A Operate moving sprinkler irrigation systems

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This Unit covers the process of operating moving sprinkler irrigation systems and defines the standard required to: read and follow operations manual and irrigation schedules; carry out pre-start checks; operate and inspect the system; measure and interpret flow rates and pressures; identify adverse environmental impacts of irrigation activities and take appropriate remedial action; shut down in response to irrigation indicators.

Application of the Unit

This Unit applies to skilled workers in the irrigation servicing, and food and fibre production industries, and is likely to be carried out under routine supervision within enterprise guidelines.

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 Carry out pre-start checks	1.1 Checks of water, power, fuel and lubricants ensure that all are available and the control system is operational 1.2 Pumps are primed, if necessary, and valves and controls are open or closed as directed 1.3 Pressure and flow testing equipment are calibrated and available as required 1.4 Regular maintenance is carried out 1.5 Other pre-start system checks are carried out in accordance with manufacturer's requirements and enterprise procedures
2 Inspect and operate the system	2.1 Start up sequence is implemented in accordance with operations manual 2.2 Emitter spacing is checked against the irrigation plan 2.3 The transport mechanism is monitored and serviced 2.4 The irrigation controller is checked for programming and efficiency 2.5 All malfunctions, leaks and blockages are corrected or repaired immediately and reported in accordance with enterprise procedures
3 Monitor the irrigation operation	3.1 The irrigation schedule is applied and soil profile monitored for wetting 3.2 Sprinkler performance is measured using catch cans 3.3 Flow rates are measured using containers of known volume 3.4 Operating pressures are measured using pressure gauges 3.5 The irrigated area is checked for wheel ruts and other signs of waterlogging
4 Shut down the system in response to irrigation indicators	4.1 Water is applied for sufficient time to achieve required soil moisture levels in accordance with irrigation schedule, environmental considerations and allowing for weather conditions 4.2 System components are shut down and drained in sequence in accordance with manufacturer's specifications and enterprise procedures 4.3 Drainage and treatment systems are checked in accordance with enterprise procedures 4.4 Irrigation activities are recorded and reported in accordance with regulatory requirements and enterprise procedures

Required Skills and Knowledge

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

Required skills include:

Ability to:

- read and follow operations manual and irrigation schedules
- operate pressure and flow testing equipment
- carry out pre-start checks and prime pumps
- start up system and carry out operational checks
- measure and interpret flow rates and pressures
- monitor system effectiveness
 - application rates
 - irrigation times
 - sprinkler output
 - pressure variations
 - salinity levels and water quality
 - depth of irrigation
 - energy efficiency
- use control systems
- shut down, clean equipment and dispose of waste
- use personal protective equipment
- perform shut down procedures
- take and record measurements of output and efficiency
- record data.

Required knowledge includes:

Knowledge of:

- general irrigation methods for moving sprinkler systems
- main components of moving sprinkler irrigation systems
- pump types used in moving sprinkler irrigation systems and their operation
- energy efficiency indicators/ benchmarks for moving sprinkler irrigation
 - Application Efficiency
 - Average Application Rate
 - Instantaneous Application Rate
- shutdown sequence
- environmental impacts of irrigation using water from any ground or underground source
- soil characteristics
- soil/plant/water relationships
- water requirements of plants/crops consistent with sound environmental management
- critical measures for moisture availability

- readily available water
- wilting point
- field capacity
- monitoring soil compaction and drainage
- environmental hazards of moving sprinkler systems including soil compaction and guttering
- 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: • read and follow operations manual and irrigation schedules • carry out pre-start checks • operate and inspect the system • measure and interpret flow rates and pressures • identify environmental hazards • shut down in response to irrigation indicators.
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.

Moving sprinkler systems may include:	specifically hard and soft reel self-travelling irrigators, lateral move systems and centre pivots.
Moving sprinkler system components include:	spans tower tower wheels outlets emitters droppers pressure regulator irrigation controller.

Unit Sector(s)

Irrigation