



Australian Government

AHCIRG434 Manage surface irrigation systems

Release: 1

AHCIRG434 Manage surface irrigation systems

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Application

This unit of competency covers the skills and knowledge required to manage a surface irrigation system.

It applies to individuals who analyse information and exercise judgement to complete a range of advanced skilled activities and demonstrate deep knowledge in a specific technical area. They have accountability for the work of others and analyse, design and communicate solutions to a range of complex problems. All work is carried out to comply with workplace procedures.

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

Pre-requisite Unit

Nil.

Unit Sector

Irrigation (IRG)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Ensure the surface 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 procedures for adjusting valves and checking filters and emitters
2. Develop and	2.1 Develop start-up procedures for the system

Element	Performance criteria
implement start-up and shutdown procedures for a surface irrigation system	2.2 Provide training in priming pumps and setting gates to commence irrigating 2.3 Develop shut down sequence and isolation procedures 2.4 Specify soil conditions for operation and maintain tracks to reduce compaction
3. Measure performance of a surface irrigation system	3.1 Record variations in pressures at the head works and control valves 3.2 Water flow rates are measured and recorded in accordance with enterprise policy and procedures 3.3 Measure and record water flow rates 3.4 Identify and record variations in water flow and distribution 3.5 Measure and record pump performance parameters as necessary 3.6 Measure and record variations in pump performance parameters where relevant 3.7 Inspect distribution, drainage and water measurement systems and identify and fix malfunctions in system and record actions 3.8 Identify and record factors external to the system that may cause interference
4. Review system performance status	4.1 Record system pressures and variations 4.2 Record system flow rates and variations 4.3 Calculate and record distribution uniformity and mean application rates 4.4 Determine and record watering depth 4.5 Measure quantity and quality of tail water, and amount of water reused 4.6 Calculate energy use and water efficiency and compare to industry benchmarks

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

New unit - No equivalent.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCIRG434 Manage surface irrigation systems

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Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence that they can:

- develop procedures and providing training to staff to:
- carry out running repairs on irrigation delivery and drainage systems
- carry out shut down procedures
- check pressure at the head works and control valves
- set up pipes, system equipment and outlets
- use siphons
- develop procedures for starting up, carrying out operational checks and shutting down
- identify and record variations in water flow and distribution
- identify adverse environmental impacts of irrigation activities and take appropriate remedial action
- implement and follow workplace health and safety and environmental requirements
- measure and recording water flow rates
- provide supervision and training

Knowledge Evidence

The candidate must demonstrate knowledge of:

- principles and practices of surface irrigation management
- calculating irrigation efficiency using records to review an irrigation system
- critical measures for moisture availability:
- evapotranspiration
- field capacity
- infiltration rates
- readily available water
- water holding capacity

- wilting point
- environmental impacts of irrigation using water from any ground or underground source
- main components of surface irrigation systems
- physical soil characteristics such as infiltration rate, water holding capacity and wetted volume in the root zone
- pump types used in surface irrigation systems and their operating requirements
- pump types used in surface irrigation systems and their operation
- set up of headwater, tail water, channels and beds
- soil moisture testing techniques
- water in soils and plants
- water requirements of plants and crops consistent with sound environmental management

Assessment Conditions

Assessors must satisfy current standards for RTOs.

Links

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