



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG304A Operate gravity fed irrigation systems

Release: 1

AHCIRG304A Operate gravity fed irrigation systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the process of operating gravity fed (flood) irrigation systems and defines the standard required to: read and follow operations manual and irrigation schedules; use pre-start checks; operate and inspect the system; check pressure at the headworks and control valves; carry out running repairs on irrigation delivery and drainage systems; shut down in response to irrigation indicators.
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Application of the Unit

Application of the unit	This unit applies to workers on irrigation farms and is likely to be carried out under routine supervision within enterprise guidelines.
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA

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1. Perform pre-start checks for gravity fed irrigation system	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 gates and controls are open or closed in accordance with enterprise procedures. 1.3. Pipes, system equipment and outlets are positioned and set up in accordance with enterprise standards and OHS requirements.
2. Start up and inspect system	2.1. Syphons and other delivery mechanisms are primed and started in accordance with enterprise procedures. 2.2. Start up sequence is implemented in accordance with operations manual and water levels, and pressure built up slowly as directed. 2.3. Pressure at the headworks and control valves is within design specifications indicating efficient filter operation, and water is distributed evenly to the targeted areas with minimal wastage and run-off. 2.4. All malfunctions, leaks, damage to water courses and blockages are corrected or repaired immediately and reported in accordance with Occupational Health and Safety (OHS) and enterprise procedures. 2.5. Head water levels are monitored and maintained. 2.6. If used, pumps are monitored during operation, rubbish is cleared from outlets, and pump is backflushed in accordance with enterprise procedures. 2.7. Irrigation changes are implemented in accordance with enterprise procedures. 2.8. Water reuse systems are checked for clearance and freedom from weeds.
3. Shut down system based upon irrigation indicators	3.1. Area is irrigated in accordance with enterprise procedures, and time lag between shut down and end of watering is observed to minimise run-off and deep percolation. 3.2. System components are shut down in sequence in accordance with manufacturer's and enterprise procedures. 3.3. Drainage and treatment systems are checked in accordance with enterprise procedures. 3.4. Tailwater control systems are implemented in accordance with statutory requirements and

ELEMENT	PERFORMANCE CRITERIA
	enterprise standards. 3.5. Irrigation activities are reported and recorded in accordance with regulatory requirements and enterprise procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- identify hazards and implement safe work procedures
- set up pipes, system equipment and outlets
- start up the system
- use syphons
- check pressure at the headworks and control valves
- carry out running repairs on irrigation delivery and drainage systems
- carry out shut down procedures
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- implement OHS and environmental policies and procedures relating to the operation of gravity fed irrigation systems
- use literacy skills to read, interpret and follow organisational policies and procedures, follow sequenced written instructions, record accurately and legible information collected and select and apply procedures for a range of tasks
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning techniques, active listening, clarifying information and consulting with supervisors as required
- use numeracy skills to estimate, calculate and record routine workplace measures
- use interpersonal skills to work with and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities.

Required knowledge

- general irrigation methods for gravity fed irrigation systems
- main components of gravity fed irrigation systems
- pump types used in gravity fed irrigation systems and their operation
- environmental impacts of irrigation, using water from any ground or underground source
- inspection procedures

REQUIRED SKILLS AND KNOWLEDGE

- soil/plant/water relationships
- water requirements of plants/crops consistent with sound environmental management
- shutdown sequence
- OHS, environmental and enterprise policies and procedures relating to the operation of gravity fed irrigation systems.

Evidence Guide

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	Evidence is required in the process of operating gravity fed irrigation systems. 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 • use pre-start checks • operate and inspect the system • check pressure at the headworks and control valves • carry out running repairs on irrigation delivery and drainage systems • 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

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole.	
Systems may require:	• gravity fed irrigation systems such as border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Gravity fed systems may range from manual operation and monitoring to fully automated with computer control and monitoring.

Unit Sector(s)

Unit sector	Irrigation
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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