



Australian Government

Department of Education, Employment and Workplace Relations

FDFWGG2014A Operate the irrigation system

Release: 2

FDFWGG2014A Operate the irrigation system

Modification History

This unit supersedes and is equivalent to FDFWGGISB Operate the irrigation system.
April 2012: Minor typographical corrections.

Unit Descriptor

Unit descriptor	This specialist unit has been developed for the wine grape growing stream of the wine sector. It covers the skills and knowledge required to operate the irrigation system and implement the irrigation system maintenance schedule according to instructions. It may include the supervision of maintenance personnel.
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Application of the Unit

Application of the unit	This unit applies to employees who operate equipment used to irrigate vines used in winemaking. The unit covers the operation of various types of irrigation equipment, including flood, dripper, microjet, sprinkler, overhead and water winch. Operation of irrigation must be consistent with environmental and occupational health and safety (OHS) requirements and to irrigation specification.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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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. Prepare the irrigation system for operation	1.1 Services are confirmed as available and ready for use 1.2 System is checked to confirm readiness for use 1.3 System is set to meet irrigation requirements
2. Operate the irrigation system	2.1 The irrigation system is started up according to workplace procedures 2.2 Control points are monitored to confirm that performance is maintained within specification 2.3 Out-of-specification system performance is identified, rectified and/or reported 2.4 Irrigation requirements are delivered according to instructions
3. Complete operation of the irrigation system	3.1 Irrigation system is shut down according to workplace procedures 3.2 Waste generated by both the process and cleaning procedures is collected, treated, disposed of or recycled according to workplace procedures 3.3 Work is conducted in accordance with workplace environmental guidelines
4. Implement maintenance procedures for the irrigation system	4.1 Maintenance personnel are instructed as required 4.2 Irrigation system cleaning and maintenance activities are monitored to confirm performance is maintained within specification 4.3 Out-of-specification performance is identified, rectified and/or reported 4.4 Irrigation system cleaning and maintenance activities are implemented according to instructions 4.5 Problems and anomalies are identified, corrected and/or reported
5. Record information	5.1 Workplace information is recorded in the appropriate format

Required Skills and Knowledge

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

Required skills include:

Note: The following required skills should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

Ability to:

- access workplace information to identify irrigation requirements
- select, fit and use personal protective clothing and/or equipment
- confirm supply of necessary services and materials
- identify, rectify and/or report environmental non-compliance
- liaise with other work areas
- confirm equipment status and condition
- set up and start up the process. This can involve the use of process control systems
- monitor the process and system operation to identify out-of-specification results or non-compliance. This may involve monitoring:
 - application rates
 - irrigation times
 - dripper output
 - pressure variations
 - salinity levels and water quality
 - depth of irrigation
 - maintenance requirements and procedures
 - cleaning requirements and procedures
 - maintenance operator progress or performance
- take corrective action in response to out-of-specification results or non-compliance
- report and/or record corrective action as required
- shut down equipment in response to an emergency situation
- shut down equipment in response to routine shutdown requirements
- maintain work area to meet housekeeping standards
- use appropriate cleaning techniques
- implement routine maintenance and minor repairs of the system
- implement routine system cleaning requirements
- supervise others according to enterprise procedures
- apply information technology systems according to enterprise procedures
- apply sampling techniques according to enterprise procedures
- conduct routine tests according to enterprise procedures
- use oral communication skills/language to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor

- work cooperatively within a culturally diverse workforce.

Required knowledge

Note: The following required knowledge should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

Knowledge of:

- principles, purpose and benefits of different irrigation techniques and schedules and their affect on vine growth and grape and/or wine quality. This should include partial rootzone drying (PRD)
- soil characteristics as they apply to vine irrigation. These may include:
 - structure
 - compaction
 - condition
 - texture
 - moisture
- basic vine physiology in relation to the irrigation system, which may include:
 - transpiration
 - water intake
 - nutrient uptake
 - photosynthesis
 - respiration
 - translocation
- parts of the root, trunk, shoot and fruit systems of the grape vine, their role in how the vine works and their contribution to fruit quality, including:
 - buds, nodes and tendrils
 - cambium, epidermis, phloem and xylem
 - leaf blade, bract and petiole
 - bunch, berries and flowers
- vine types, their characteristics and uses, including:
 - family, genus and species
 - Vitis vinifera and commercial varieties
 - native species and hybrids (e.g. labrusca)
 - rootstocks and scion stock
- industry processes for new variety development
- annual grape vine growth stages, including:
 - budburst
 - flowering
 - veraison
 - maturity
- key grape varieties and their distinguishing features. This may include factors, such as:

- berry and bunch characteristics
- frost and disease resistance
- flavour and style
- purpose and operation of irrigation system and instrumentation components
- basic operating principles and process control systems where relevant
- services required
- control points and significance and methods of monitoring
- common causes of variation and corrective action required
- process specifications, procedures and operating parameters
- OHS hazards and controls
- lock-out and tag-out procedures
- environmental issues and controls
- procedures and responsibility for reporting problems
- cleaning requirements and procedures for the system
- maintenance requirements and procedures for the system
- shutdown sequence
- recording requirements and procedures
- supervision techniques where relevant
- information technology systems where relevant
- sampling techniques and procedures where relevant
- routine testing procedures where relevant.

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	Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: • use personal protective clothing and equipment where required • correctly select and prepare irrigation equipment including performing pre-start checks • set equipment correctly to achieve specified irrigation time, application rate and pressure • start irrigation process correctly • monitor irrigation process control points and equipment, including checking for environmental compliance • take corrective action in response to out-of-specification results or non-compliance • perform routine and emergency shutdowns • record information appropriately.
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: • personal protective clothing and equipment as required • work procedures, including advice on company practices, safe work practices, food safety, quality and environmental requirements • instructions, information, specifications and schedules as required • equipment, services and corresponding information as required • products and materials as required • internal and external customers and suppliers as required • cleaning procedures, materials and equipment as required

EVIDENCE GUIDE	
	documentation and recording requirements and procedures.
Method of assessment	This unit should be assessed together with other units of competency relevant to the function or work role.
Guidance information for assessment	To ensure consistency in one's performance, competence should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

Range Statement

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.	
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	Workplace information can include: - Standard Operating Procedures (SOPs) - specifications - production schedules - instructions - routine maintenance schedules - work notes - Material Safety Data Sheets (MSDS) - manufacturer instructions - verbal directions from manager, supervisor or senior operator
Confirming equipment status	Confirming equipment status involves: checking that all safety standards and pre-start requirements are met and that equipment is operational

RANGE STATEMENT	
	checking the operation and/or calibration of measuring instrumentation
Services	Services may include: - water - power
Monitoring the process	Monitoring the process may involve: the use of production data, such as performance control charts
Process operation and monitoring functions	Process operation and monitoring functions may be: manual or involve the use of a process control system
Control points	Control points refer to those key points in a work process that must be monitored and controlled. This includes: - quality and regulatory control points - inspection points
Irrigation systems	Irrigation systems may include: - flood - dripper - microjet - sprinkler - overhead - water winch
Components of irrigation equipment	Components of irrigation equipment may include: - drippers - pipelines - sprinklers - filters - microjets - pumps - furrows - valves - motors - timers - windmills
Maintenance and minor repairs	Maintenance and minor repairs may include: - breakages - leaks

RANGE STATEMENT	
	• blocks • replacing drippers • making joins • filters and turbo keys • monitoring devices • priming pumps and motors
Information systems	Information systems may be: • screen or print based and may include information technology, such as automatic moisture sensing systems and irrigation scheduling systems

Unit Sector(s)

Unit sector	Wine operations
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