



Australian Government

Assessment Requirements for AHCIRG438 Select and manage pumping systems for irrigation

Release: 1

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Modification History

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

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 selected and managed an irrigation pumping system on at least one occasion and has:

- identified irrigation system requirements from the irrigation design
- selected pump according to type, installation, range of flow rates, operating head and delivery distance
- calculated pumping requirements and pressure loss due to irrigation components
- supervised installation of pumps
- monitored the performance of pumps, valves and filters
- developed maintenance procedures for the pumping system
- carried out troubleshooting on the pumping 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:

- application of mechanical, hydraulic and electrical principles
- automatic pump switches, including:
 - flow switches
 - irrigation controllers
 - pressure switches
 - timers
- sources of information and the processes for the calculation of material requirements and flow rates
- advantages and disadvantages of each pump type
- selection factors for pumps, including:
 - source of water and lift
 - the required pumping flow rate and pressure

- the total dynamic head
- the total suction head
- types of pumps and application in irrigation, including:
 - centrifugal
 - propeller
 - submersible
 - vertical turbine
- types of pumps suitable as booster and floating pumps
- discharge and flow rates
- types of impellers and their use
- environmental procedures for installing and maintaining irrigation pumping systems
- pump installation factors, including:
 - adequate space, head room, ventilation and lighting
 - correct alignment procedures of pump and motor shafts with direct coupled units
 - provision for adjustment and ease of dismantling
 - levelling and alignment processes
 - overhaul or repair operations
 - properties of water including pressure and flow rates
 - pump components and their principles of operation
 - pump efficiency, performance and pressure testing
 - pump positioning (driver alignment and suction length)
 - access for routine preventative maintenance
- types of valves
- pump cavitation, cause and effect.

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:
 - irrigation pumping system equipment and tools
 - irrigation pumping system measuring, and recording equipment and procedures
- timeframes:
 - according to the job requirements.

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

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -

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