



Australian Government

AHCIRG310 Operate and maintain irrigation pumping systems

Release: 1

AHCIRG310 Operate and maintain irrigation pumping systems

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to operate an irrigation pumping system and maintain pumps and pumping equipment.

It applies to individuals who take responsibility for own work and for the quality of the work of others. They use discretion and judgement in the selection, allocation and use of available resources. 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. Prepare to maintain pumps	1.1 Obtain and interpret work requirements for the satisfactory completion of operations 1.2 Select and use materials, tools, equipment and machinery as required by the work activity 1.3 Identify work health and safety hazards, assess risks and implement suitable controls 1.4 Select, use and maintain suitable safety and personal protective equipment 1.5 Identify and arrange support required for the safe completion of

Element	Performance criteria
	the servicing and maintenance tasks 1.6 Carry out isolation and lock-out of all equipment necessary for the safe execution of tasks
2. Carry out pump maintenance	2.1 Inspect pumps and report any faults 2.2 Service and maintain pumps 2.3 Dispose of used oil, lubricant and other waste 2.4 Maintain servicing and maintenance records
3. Prepare the pumping system	3.1 Check operation and function of pump and driver 3.2 Conduct pre-start-up checks on the pumping system to ensure valves are correctly sequenced and filters are clear before commencing pumping operations, and that all safety requirements are met
4. Start up and shutdown pumping system	4.1 Operate ancillary equipment 4.2 Start up and shut down pump 4.3 Implement emergency shutdown procedures when required
5. Operate and monitor pumping and ancillary systems	5.1 Check and maintain flanges, gaskets and seals within stated operational tolerances and to avoid environmental damage 5.2 Monitor pump pressures and flows for conformance 5.3 Use amperage testing equipment to monitor and identify variations in the operating conditions of the pumping systems and equipment 5.4 Monitor pumping systems and equipment performance as well as all components to identify any signs of excessive wear and a reduction of performance 5.5 Check operational valves and valve assemblies for possible leakages 5.6 Check filter systems periodically and clean to remove any potential blockages or impurities entering the pumping system and equipment which may cause it to cavitate or malfunction during operation 5.7 Inspect and sample lubrication oil to check that operating levels are correct and to determine if any contamination has taken place which may affect the operational capacity of the pumping system and equipment 5.8 Take appropriate action resulting from checks and monitoring
6. Shut down the pumping system	6.1 Shut down injection equipment and pump 6.2 Clean pumping equipment 6.3 Collect, treat and dispose of or recycle waste generated by both the pumping process and cleaning procedures

Foundation Skills

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

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCIRG310A Operate and maintain irrigation pumping systems.

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 AHCIRG310 Operate and maintain irrigation pumping 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.

The candidate must provide evidence that they can:

- adjust pump settings
- check and clear or replace filters
- check and top-up fluids, including coolants, lubricants and hydraulic oils
- check oil quality and levels
- clear blockages
- inspect and clean pumps
- lubricate pumps
- monitor pressures and flows
- prime a pump
- replace belts
- replace worn components, including pump seals, liners and impellers
- set valves and check for wear and leakages
- tension fasteners and y-belts
- use amperage testing equipment

Knowledge Evidence

The candidate must explain:

- advantages and disadvantages of each pump type
- automatic pump switches including timers, pressure switches, irrigation controllers and flow switches
- basic principles of hydraulics (flow vs. pressure)
- discharge and flow rates
- impellers, rotors and stators
- properties of water including pressure and flow rates
- pump components and their principles of operation

- pump performance and fault finding
- pumps and their application in irrigation, such as centrifugal, vertical turbine, submersible and propeller
- pumps that are suitable as booster and floating pumps
- reading pump gauges and controls
- service requirements of pumps
- valves and their uses
- workplace and equipment safety requirements

Assessment Conditions

Assessors must satisfy current standards for RTOs.

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