



Australian Government

AHCIRG402 Determine hydraulic parameters for an irrigation system

Release: 1

AHCIRG402 Determine hydraulic parameters for an irrigation system

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to determine hydraulic parameters for an 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. Confirm water delivery specifications for irrigation system	1.1 Confirm soil characteristics and determine hydraulic properties 1.2 Determine plant and crop water requirements for various stages of growth 1.3 Calculate peak water requirements for each area to be irrigated

Element	Performance criteria
2. Determine pressures required to deliver required amount of water over specified area	2.1 Determine static pressures between water source and delivery points 2.2 Calculate dynamic pressure necessary to achieve required water volume
3. Analyse technical drawings to determine pressure losses through system	3.1 Calculate losses resulting from fittings, laterals and elevation differences 3.2 Determine losses resulting from flow through canals, culverts and pipes of varying sizes and diameters within a system 3.3 Calculate total friction loss 3.4 Determine hydraulic parameters for system
4. Select system components to deliver water efficiently	4.1 Select water delivery components to achieve the most efficient delivery rate and pressure 4.2 Select compatible flow direction and control components with pipes that will achieve minimal friction losses

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 AHCIRG402A Determine hydraulic parameters for an irrigation system.

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 AHCIRG402 Determine hydraulic parameters for an irrigation system

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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:

- apply hydraulic principles to manual and computerised irrigation systems
- calculate pressures, flows, velocities and friction losses
- determine efficiency of the system with varying system components
- identify adverse environmental impacts of irrigation activities and appropriate remedial action
- read contour maps and interpret elevations and distances

Knowledge Evidence

The candidate must demonstrate knowledge of:

- calculate pressure loss due to irrigation components
- calculate pumping requirements
- hydraulic principles such as static and dynamic pressure, pressure loss, friction loss, flow rate and velocity, effect of gradient on flow rate, contact time and drainage
- irrigation system components
- types and pressure ratings for pipes, fittings and outlets

Assessment Conditions

Assessors must satisfy current standards for RTOs.

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