

Modification history

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 4.0.
Release 1	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 1.0.

AHCIRG402	Determine hydraulic parameters for an irrigation system
Application	<p>This unit of competency describes the skills and knowledge required to determine hydraulic parameters for an irrigation system.</p> <p>The unit applies to individuals who apply specialised skills and knowledge to determine hydraulic parameters for an irrigation system. This includes applying and communicating non-routine technical solutions to predictable and unpredictable problems.</p> <p>No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.</p>
Prerequisite Unit	Nil
Unit Sector	Irrigation (IRG)

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
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
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 efficient delivery rate and pressure 4.2 Select compatible flow direction and control components with pipes to achieve minimal friction losses

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	<ul style="list-style-type: none"> Identify and interpret information regarding irrigation system hydraulic parameters
Writing	<ul style="list-style-type: none"> Record scheduling system information for each irrigation, significant rainfall events and other appropriate parameters
Numeracy	<ul style="list-style-type: none"> Estimate or measure water use Calculate peak water requirements Calculate dynamic pressure requirements Calculate pressure losses resulting from fittings, laterals, and elevation differences Calculate pressure losses resulting from flow through canals, culverts and pipes of varying sizes and diameters Calculate total friction loss
Navigate the world of work	<ul style="list-style-type: none"> Identify and describe own workplace requirements, including safety requirements, associated with own role and area of responsibility

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCIRG402 Determine hydraulic parameters for an irrigation system Release 2	AHCIRG402 Determine hydraulic parameters for an irrigation system Release 1	Minor changes to performance criteria and foundation skills	Equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet:
<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

TITLE	Assessment requirements for AHCIRG402 Determine hydraulic parameters for an irrigation system
Performance Evidence	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has determined hydraulic parameters for an irrigation system on at least one occasion and has:</p> <ul style="list-style-type: none"> • applied hydraulic principles to manual and computerised irrigation systems • calculated pressures, flows, velocities and friction losses • determined efficiency of the system with varying system components • identified adverse environmental impacts of irrigation activities and appropriate remedial action • read contour maps and interpreted elevations and distances. 	
Knowledge Evidence	
<p>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:</p> <ul style="list-style-type: none"> • 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 • contour maps. 	
Assessment Conditions	
<p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"> • physical conditions: <ul style="list-style-type: none"> • a workplace setting or an environment that accurately represents workplace conditions • resources, equipment and materials: <ul style="list-style-type: none"> • irrigation system water delivery specifications • contour maps • timeframes: <ul style="list-style-type: none"> • according to the job requirements. <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p>	
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