



Assist with the operation of pressurised irrigation

AHCIRG202A

By the end of this topic, you should be able to:

- Assist with setting up of irrigation components
- Carry out irrigation operations
- Clean and store irrigation equipment as required

What is an irrigation system?

- An irrigation system is a system of components which supplies and distributes water.
- This includes micro-irrigation systems and spray irrigation systems
 - Systems range from manual operation and monitoring to fully automated with computer control and monitoring

Micro-irrigation systems may include	Spray irrigation systems may include
• Mains pressure • Low pressure • Below or above ground • Sprays systems • Drip emitter trickle • T-tape • Mini-sprinklers • Capillary pop ups • Gear driven sprinklers	• Travelling irrigators (soft hose, hard hose boom type) • Centre pivot • Linear move • Powered side roll hand shift permanent (installed) • Bike shift/easy shift

What is an irrigation system?

- A pressurised irrigation system consists of many components, including:

Equipment	Definition
Drip tape	Water distribution system that operates at very low pressure.
Emitter	Two main types: Allow water to seep into the root zone or direct water into the air. Includes pop-up sprinklers.
Filter	Removes debris from systems.
Fittings	Used to join pipes together. Poly fittings have barbed ends which are pushed into the pipes to connect them together.
Gate valve	Used primarily as a shut-off valve, as opposed to flow control.
Master valve	Ensures that at the end of the watering cycle the water is turned off at a central valve.
Poly pipe	Provides an outlet for water to travel through.
Pump	Deliver waters to irrigation system.

Setting up irrigation components

- When setting up irrigation components, you should familiarise yourself with the following:
 - Task requirements
 - The irrigation plan will determine the scope and requirements of an irrigation job
 - Apply active listening when receiving instructions
 - Clarify any unclear instructions with your supervisor

Setting up irrigation components

- When setting up irrigation components, you should familiarise yourself with the following:
 - Workplace information
 - Identify underground services for the site (e.g. from site plans, supervisor or contacting Dial Before You Dig)
 - For example: Telephone lines, gas, electrical, water, cable

- When setting up irrigation components, you should familiarise yourself with the following:
 - **Work area**
 - Identify any WHS hazards and assess risks (e.g. underground services, manual handling injuries)
 - Identify environmental impacts (e.g. waterlogging, soil salination, ecological damage)
 - Report hazards to your supervisor within a timely fashion – especially emergency situations

- When setting up irrigation components, you should familiarise yourself with the following:
 - Available PPE, tools and equipment
 - PPE may include: Gloves, goggles, gumboots, long sleeved shirt, long trousers, waders, wide brimmed hat, work boots
 - Safety equipment may include: Signage and barricades (e.g. safety cones, flagging tape/nets)
 - Tools and equipment may include: Broom, hammer, marking paint, pipe cutter, rake, rubber mallet, saw, spade, screwdriver, tape measure, thread seal tape, trenching shovel, trowel, wire strippers
 - Ensure they are appropriately selected, prepared and used for the task, following manufacturer recommendations

Assembling an irrigation system

- To assemble an irrigation system, undertake the following steps:
 - Mark and excavate trenches to the required depth
 - Place pipes into the trenches and cut to required lengths
 - Glue fittings to the pipes

- To determine the flow rate from a water source, observe the following steps:
 - Connect plastic pipe to pressure gauge assembly
 - Connect pressure gauge assembly to water source
 - Turn tested gate valve on fully
 - Observe water flowing from source through the pipe
 - Close the gate valve until the pressure gauge reads within the normal operating pressure
 - Insert the pipe into a 9L bucket and start the stopwatch
 - Time how long it takes to fill the 9L bucket
 - Calculate the flow rate using formulae

Flow rate is the rate at which water flows from a water source

→ [Quantity (Litres) x 60] ÷ Time (seconds)

= Number of litres/minute (flow rate)

Testing an irrigation system

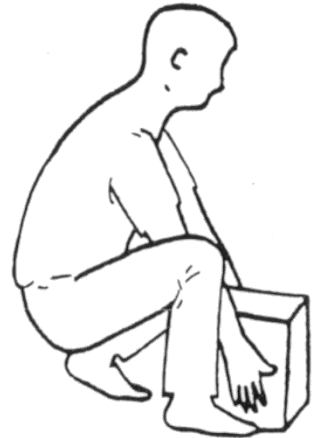
- To test an irrigation system, undertake the following steps:
 - Open the furthestmost solenoid valve
 - Open the main valve
 - Allow the system to run until the water is clear
 - Turn off the furthestmost solenoid
 - Check for leaks along the mainline, especially around control valves
 - Leave joints exposed until pressure tested
 - Turn off main valve
 - Turn on each station individually using the controller

- You may encounter a range of issues when testing an irrigation system, such as:
 - No water
 - Check that the main water valve is turned on
 - There may be debris clogging the system (e.g. at valve, sprinkler, or filters)
 - Water leaks
 - Pipes may be broken, cracked or damaged
 - There may be debris clogging the system (e.g. at valve, sprinkler, or filters)

- Some tips for using an irrigation system:
 - You should monitor irrigation times to deliver sufficient volume without overwatering
 - You may be required to regulate an irrigation system more than once to maintain correct operating pressure and water flow
 - If similar components in a system are starting to break down, you should consider replacing them all rather than repairing them

- During irrigation tasks you will be shifting materials
- Assess the following before shifting materials:
 - What needs to be relocated (e.g. size, weight)
 - The relocation area, site layout and obstacles
 - Distance and time to relocate load
 - Whether a team is available and/or appropriate
 - Whether PPE must be worn (e.g. for hazardous materials)

- Be sure to follow appropriate manual handling procedures to avoid injury
- Ensure the following:
 - Neck is upright
 - Back has natural curve
 - Feet are flat and facing the load
 - Shoulders are level
 - Knees are bent
 - Hands have a good grip around the load



- When undertaking irrigation tasks, you will likely be working as part of a team
- Observe the following tips regarding teamwork:
 - Use clear language and concepts (verbal and non-verbal)
 - Consider the varying cultural and ethnic backgrounds of your co-workers
 - Consider the message you are communicating and the best method to communicate it (e.g. written, verbal)
 - Consider the abilities of your co-workers

- As part of clean-up processes, you should:
 - Maintain, clean and store tools and equipment according to manufacturer's specifications
 - Report faults that are discovered
 - Store tools in a dry, sheltered environment
 - Place tools in racks for easy location and safety
 - Store similar tools together for easy access
 - Dispose of materials that cannot be reused or recycled
 - Ensure you implement environmentally safe practices
 - Record and report work outcomes to your supervisor

- If you are required to store a pressurised irrigation system, follow these steps:
 - Dismantle equipment
 - Load equipment onto vehicle
 - Transport equipment
 - Store equipment without damage