



Australian Government

Department of Education, Employment and Workplace Relations

RTE2606A Maintain pressurised irrigation systems

Release: 1

RTE2606A Maintain pressurised irrigation systems

Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of maintaining pressurised irrigation systems, including the repair and replacement of basic, simple components under routine supervision. It requires the ability to read and follow an operators manual and manufacturers specifications for pressurised irrigation systems, maintain selected irrigation system components, and record and report maintenance observations and activities. Maintaining pressurised irrigation systems requires knowledge of major components of a pressurised irrigation delivery system, maintenance requirements and procedures for system components, and environmentally safe disposal procedures for chemicals.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Carry out pre- and post-season maintenance	1.1 Equipment is prepared pre-season for effective operation in accordance with design specifications and enterprise standards. 1.2 System is flushed, cleaned, closed down and maintained post-season in accordance with design specifications and enterprise standards. 1.3 Equipment requiring storage is dismantled, loaded, transported and stored without damage according to enterprise standards and safe working practices.
2 Carry out routine maintenance activities on pressurised irrigation delivery systems	2.1 All maintenance activities are carried out according to the maintenance program and the manufacturers specifications. 2.2 Mechanical equipment is serviced in accordance with the operators manual or as directed. 2.3 Supply and distribution systems are flushed and cleaned with sprinklers, emitters and/or drip line tapes replaced as directed. 2.4 Outlets, strainers, pump screens and filters are cleaned and replaced as directed. 2.5 System is visually inspected for leaks, operating faults and dry areas, and observations recorded in the maintenance book. 2.6 Operation area is maintained in a clean and safe condition, and OHS procedures are followed.
3 Maintain system components	3.1 System maintenance is carried out at scheduled times using equipment and materials in accordance with enterprise standards and manufacturers specifications. 3.2 Parts are inspected for wear or blockage and reported or replaced according to enterprise guidelines.

- 3.3 **Outlets** are removed and cleaned and damaged ones are reassembled and replaced according to manufacturers specifications.
 - 3.4 Operation area is maintained in a clean and safe condition, and OHS procedures are followed.
- 4 Record and report maintenance activities
 - 4.1 All damage and blockage caused by pests and vermin is recorded by damage type, location and the section of the system affected.
 - 4.2 Damage or faulty pumps, valves, electrical components and computer systems are recorded and reported, and action taken to effect repairs.
 - 4.3 All routine maintenance activities are recorded and reported in accordance with enterprise standards.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in undertaking routine maintenance on pressurised irrigation delivery systems requires evidence that a person can inspect and replace worn parts, and follow procedures to carry out routine maintenance with only routine supervision.

The skills and knowledge required to undertake routine maintenance on pressurised irrigation delivery systems must be **transferable** to a different work environment. For example, this could include different systems, watering schedules and enterprises procedures.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

- enterprise and OHS procedures relating to pressurised irrigation system maintenance

- major components of a pressurised irrigation delivery system

- maintenance requirements and procedures for system components

- environmentally safe disposal procedures for chemical containers and residues, oils/grease and used parts.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, appropriate literacy and numeracy levels as well as some complementary skills are required. These include the ability to:

- read and follow an operators manual and manufacturers specifications for pressurised irrigation systems
- maintain selected irrigation system components
- record and report maintenance observations and activities.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

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| 1. How can communication of ideas and information (1) be applied? | Reporting damage, faulty systems and routine maintenance activities. |
| 2. How can information be collected, analysed and organised (1) ? | Recording observations of irrigation equipment in the maintenance book. |
| 3. How are activities planned and organised (1) ? | Organising task activities and equipment for maintenance activities. |
| 4. How can team work (1) be applied? | Reporting system problems others. |
| 5. How can the use of mathematical ideas and techniques (1) be applied? | Preparing equipment according to design specifications. |
| 6. How can problem-solving skills (1) be applied? | Identifying and replacing damaged outlets or faulty systems. |
| 7. How can the use of technology (1) be applied? | Using computerised irrigation systems. |

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance and where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available

What **pre-season maintenance** might be carried out?

Pre-season maintenance may include weed control, motor servicing, flushing and supply distribution, descaling and equipment service.

What **post-season maintenance** might be carried out?

Post-season maintenance may include disconnecting electrics, motor servicing, reports of equipment and machinery damage, flushing and draining, protection from environmental damage, and servicing equipment.

What **enterprise standards** might be relevant to flushing and cleaning the system?

These might include environmental considerations such as the identification of the impacts of pumping water from any ground or underground source and appropriate remedial action, and procedures for dealing with cleaning agents and waste water.

What **safe working practices** apply to dismantling and storage of equipment?

These may include safe procedures for manual handling, and the operation of machinery and equipment.

What types of **pressurised irrigation systems** might be relevant to this standard?

Irrigation systems may range from manual operation and monitoring to fully automated with computer control and monitoring. They may include micro-irrigation systems and spray irrigation systems. Micro-irrigation systems may be mains pressure, low pressure, below or above ground, sprays systems, drip emitter trickle, t-tape, mini-sprinklers, and capillary. Spray irrigation systems may be travelling irrigators (soft hose, hard hose boom type) centre pivot, linear move, powered side roll hand shift permanent (installed), and bike shift/easy shift.

What might servicing of **mechanical equipment** include?

Periodical maintenance for pumping unit may include changing engine oil, replacing the oil filter, replacing the air cleaner,

	checking battery water level, pre-cleaner, gear box oil, cooling system/water, fuel, battery charge and fuel tank, greasing the pump jack shaft and bearings, and flushing (de-silting) the pump. Centre control tower maintenance may include greasing head of pivot and all gearboxes, checking tyre pressure, and cleaning electrical controls of authorised components. There may be environmental considerations relating to the servicing of mechanical equipment such as disposal of oils/grease and used parts.
What are the OHS procedures relevant to this standard?	These might include prevention of electrical injury, protection against cleansing agents including acids, and safe systems and procedures for protection against risks of slips and falls.
What materials may be used for system maintenance?	Materials may include gland packing, rubber rings, belts and pulleys, hazardous substances, or chemicals.
What parts /replaceable system components might be inspected or replaced?	These may include pipes, jets, microjets, laterals, sprinklers, emitters, integrated dripline "thin wall", seals and outlets.
What outlets might be removed and cleaned or replaced?	Outlets may include drip lines, cups and fluming, pipes, risers, valves, sprinklers and emitters.
For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.	

Unit Sector(s)

Not applicable.