Australian Government

Department of Education, Employment and Workplace Relations

RTE3612A Implement a maintenance program for an irrigation system

Release: 1

RTE3612A Implement a maintenance program for an irrigation system

Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of implementing a maintenance program for an irrigation system. It requires the ability to interpret an irrigation maintenance program, inspect irrigation system, record and report maintenance activities, test irrigation equipment, record results, undertake minor repairs of equipment, and dispose of unused or waste materials from site in an environmental safe sensitive manner. Implementing a maintenance program for an irrigation system requires knowledge of soil/plant/water relationships, environmental impacts of irrigation, irrigation system components, common operational and maintenance problems, and environmentally safe disposal procedures.

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

Elements and Performance Criteria

Element	Performance Criteria
1 Interpret an irrigation maintenance program	1.1 **Scope of maintenance works** is determined according to the irrigation maintenance program.
	1.2 Frequency of maintenance works is determined and implemented according to the irrigation maintenance program.
	1.3 Irrigation maintenance standards are established in line with the irrigation maintenance program.
	1.4 Maintenance works are planned and prepared.
	1.5 **OHS requirements** are identified, associated hazards and risks assessed, and suitable controls implemented.
	1.6 **Environmental considerations** of irrigation maintenance activities are identified.
2 Inspect irrigation system	2.1 An inspection checklist is established according to the irrigation maintenance program.
	2.2 System is regularly inspected according to the checklist.
	2.3 Remedial action and repairs are identified and undertaken to restore system to full effectiveness.
	2.4 Servicing of **mechanical equipment** is undertaken according to the irrigation maintenance program.
	2.5 Results of maintenance works are assessed and recorded to ensure repairs or maintenance standards have been achieved according to the irrigation maintenance program.
	2.6 Ensure surroundings are tidied and materials and equipment cleared from the site on completion of maintenance works.

3 Record and report maintenance activities	3.1 Damage and blockage caused by pests and animals are recorded by damage type, location and the section of the system affected.
	3.2 Damage or faulty pumps, valves, electrical components and computer systems are recorded and reported, and action taken to effect repairs.
	3.3 Routine and preventative 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 implementing a maintenance program for an irrigation system requires evidence that a person can interpret the maintenance program and implement it to industry and enterprise standards.

The skills and knowledge required to implement a maintenance program for an irrigation system must be **transferable** to a different work environment. For example, this could include different irrigation systems, enterprises, locations, soil types and environmental considerations.

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:

soil/plant/water relationships

environmental impacts of irrigation

irrigation system components

common operational and maintenance problems

enterprise, OHS and environmental policies and procedures

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, as per template complementary skills are required. These include the ability to:

interpret an irrigation maintenance program

inspect irrigation system

record and report maintenance activities

read and interpret design and layout plans

test irrigation equipment

record all test results clearly and concisely with attention to detail

undertake minor repairs of equipment

dispose of unused or waste materials from site in an environmentally safe and sensitive manner.

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.

1. How can **communication of ideas and information** (**2**) be applied?	Through reporting of maintenance activities.
2. How can **information be collected**, **analysed and organised** (**2**)?	Information may need to be collected, analysed and organised when testing systems and recording results.
3. How are **activities planned and organised** (**2**)?	Activities may need to be planned and organised according to enterprise guidelines.
4. How can **team work** (**2**) be applied?	Team work may need to be applied when testing and adjusting environmental parameters.
5. How can the use of **mathematical ideas and techniques** (**2**) be applied?	Mathematical ideas and techniques may need to be applied when testing irrigation equipment.
6. How can **problem-solving skills** (**2**) be applied?	Problem-solving skills may need to be applied in troubleshooting problems with the system.
7. How can the **use of technology** (**2**) be applied?	The use of technology may be applied when using tools to check or repair the system.

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 range of contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment may depend on the work context

What is likely to be included in the **scope of maintenance works**?	Irrigation maintenance work on pressurised 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. Irrigation maintenance work on gravity-fed systems may range from manual operation and monitoring to fully automated with computer control and monitoring. Flood irrigation systems may include border check, contour irrigation, furrow irrigation, hillside flooding, and basin irrigation. Border check systems may be either permanent or temporary earth, plastic or concrete devices for insertion in a drain for reticulating water, contour banks used to collect and distribute water along the perimeter of an irrigation plot, contour banks within a plot to collect/distribute water, or larger scale systems to stop water exiting one area to another.
What **OHS** requirements are relevant to this standard?	These may include systems and procedures for the safe operation of irrigation equipment and to ensure protection against injury when working with pumps, outlets and other system equipment, the prevention of

	electrical type injury, manual handling and procedures for working outdoors, including protection from solar radiation, dust and noise.
What **environmental considerations** relate to this standard?	Environmental considerations may include efficient operation of the system to conserve water by identifying and repairing leaks, avoidance of over watering, and even distribution of water to targeted areas with minimal wastage and run-off.
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.

For more information on contexts, environment and variables for training and assessment, refer to the Sector Booklet.

Unit Sector(s)

Not applicable.