



Australian Government

Department of Education, Employment and Workplace Relations

FDFTEC4010A Manage water treatment processes

Revision Number: 2

FDFTEC4010A Manage water treatment processes

Modification History

November 2011: update to imported prerequisite, minor typographical error corrected.

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to treat water for use in production stages, such as washing and cooling and to treat waste water.
------------------------	---

Application of the Unit

Application of the unit	This unit is designed to provide an overview of water treatment methods and responsibilities across a food production site. It is not designed to meet the competency requirements of the person who specifies water quality standards and/or treatment methods.
--------------------------------	--

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	MSAENV272B	Participate in environmentally sustainable work practices

Employability Skills Information

Employability skills	This unit contains employability skills.
-----------------------------	--

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Manage water treatment processes	1.1. Uses of water within the plant and the related quality requirement for each use are identified 1.2. Appropriate treatment methods are in place to meet treatment requirements 1.3. Environmental considerations for water treatment are identified and treatment options selected or applied to minimise environmental impact 1.4. Procedures for treating water are developed and/or reviewed
2. Manage waste water treatment and disposal	2.1. Sources and characteristics of waste water generated across food processing operations are identified 2.2. Methods for treating and recycling water are identified 2.3. Appropriate treatment methods are in place to meet treatment requirements 2.4. Legal requirements for water discharge are identified 2.5. Factors affecting the cost of water discharge are identified and monitored 2.6. Conditions that could result in non-compliance and the related control methods in place to prevent this from occurring are established 2.7. Procedures for treatment of waste water are developed and/or reviewed to ensure compliance with trade waste standards and minimal impact to the environment 2.8. Opportunities to reduce the volume of trade waste and improve treatment methods are identified, investigated and implemented within level of responsibility

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Ability to:

- map the uses of water in production across the production site, such as water used in cooling applications, and washing/flushing
- identify treatment requirements and methods for water used in production, such as addition of sanitising agents (e.g. chlorine and anti-rust agents)
- identify causes of risks associated with Legionella and related control measures
- describe the meaning of terms and concepts used to describe water quality, such as:
 - potable
 - total residual chlorine
 - free residual chlorine
 - available chlorine
- identify acceptable limits for water going to storm water (pH range)
- identify the legal, social and environmental consequences of releasing water to the environment that does not meet water quality standards
- identify characteristics that are monitored in waste water and how these affect the cost of trade waste disposal (this is set out in agreements with the water supplier and typically includes volume, BOD, suspended solids, and nitrogen - some types of heavy metals may also be monitored although this may not directly affect cost of disposal)
- identify equipment and methods used to monitor waste water characteristics, including meters used to measure volume and a sampling and testing regime to check water quality
- describe principles of common methods used to treat trade waste and identify typical applications, including both primary and secondary treatment stages
- identify conditions that could result in failure to comply with legal requirements for storm water and related control methods (e.g. spill control consequences and control methods)
- identify conditions that could result in high costs of trade waste disposal and related control methods, such as conditions or activities that place additional load on treatment processes (e.g. use of strong cleaning chemicals and related control measures)
- develop and/or review procedures to describe procedures to minimise costs of trade waste disposal, including good housekeeping practices, such as collection of solids and materials rather than hosing them down drains
- identify the rights of relevant authorities to enter the site and conduct independent sample collection and test procedures
- Identify appropriate communication and consultation systems to support

REQUIRED SKILLS AND KNOWLEDGE

- continuous improvement of resource efficiency and waste management
- identify trends in environmental management and social expectations of companies and assess the company environmental policy and related procedures in light of these trends
- map the drainage points across a production site, including identifying drains that go to bunded areas, trade waste and storm water
- map the waste water generated at each stage of the food processing operation (for each stream generated, identify the characteristics of waste water and related treatment requirements)
- carry out an assessment on water use within a given process
- identify the quantities and applications of water, the treatment stages, if any, points where water could be more effectively conserved, such as running hoses, steam leaks, and waste water generated by the process
- identify the treatment methods currently in place and consider opportunities to improve resource utilisation through conservation of water, changing materials and processing methods and/or more effective treating and/or recycling of waste water
- based on investigations, develop improvement proposals (this may be undertaken with input from relevant technical specialists)
- establish and/or utilise consultative arrangements to canvass input on efficient water use and trade waste treatment methods
- communicate information on changes to workplace systems and procedures to support improvements
- use communication skills to interpret and complete work information to support operations of work team or area
- demonstrate and support cooperative work practices within a culturally diverse workforce

Required knowledge

Knowledge of:

- uses of water in production
- treatment requirements and methods for water used in production
- legal, social and environmental consequences of releasing water to the environment
- causes of risks associated with Legionella and related control measures
- acceptable limits for water going to storm water (pH range)
- characteristics that are monitored in waste water and how these affect the cost of trade waste disposal
- rights of relevant authorities to enter the site and conduct independent sample collection and test procedures
- trends in environmental management
- characteristics of waste water and related treatment requirements
- methods for recycling water
- conditions that could result in non-compliance and the related control methods

REQUIRED SKILLS AND KNOWLEDGE

- information resources

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of ability to:

- identify and assess water usage and disposal processes in the production site
- identify environmental impacts of water use, treatment and disposal
- identify risks associated with water quality
- identify treatment requirements and methods for water used in production
- identify costs associated with use, treatment and disposal
- identify and assess opportunities for improving water efficiencies.

Context of and specific resources for assessment

Assessment must occur in a real or simulated workplace where the assessee has access to:

- company environmental policy and related procedures
- site plans, including relevant advice on drainage system
- advice on environmental hazards and control procedures relevant to the production facility
- incident and emergency response procedures and equipment
- workplace information recording systems, requirements and procedures.

Method of assessment

This unit should be assessed together with core units and other units of competency relevant to the function or work role.

Guidance information for assessment

To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of

EVIDENCE GUIDE

circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Water treatment and related work processes	Water treatment and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of occupational health and safety (OHS) and environmental impact
Procedures for waste water treatment	Procedures for waste water treatment include: • safety information and procedures to respond to non-compliance and emergency situations
Out-of-specification results	Follow up action in response to out-of-specification results occurs in consultation with the relevant quality/technical expert responsible for packaging specifications
Primary treatment stages	Primary treatment stages include but are not limited to: • separation • filtration • sedimentation (settling tanks) • dissolved air floatation (DAF)
Secondary processes	Secondary processes include but are not limited to: • activated sludge • trickling filter systems

Unit Sector(s)

Unit sector	Technical
--------------------	-----------

Competency field

Competency field	
------------------	--

Co-requisite units

Co-requisite units		