Australian Government

Department of Education, Employment and Workplace Relations

FDFSUG222A Operate a waste water treatment system

Release: 1

FDFSUG222A Operate a waste water treatment system

Modification History

New Unit based on *SUGPWWT2A Operate a waste water treatment system*.

Unit Descriptor

This unit describes the outcomes required to operate waste water treatment systems to comply with workplace requirements, trade waste agreements and site environmental authority.

Application of the Unit

This unit has application in the sugar milling industry.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

There are no pre-requisite units for this competency standard.

Employability Skills Information

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 Prepare the waste water treatment process for operation	1.1 Chemicals and test equipment are available and ready for use 1.2 Services are confirmed as available and ready for operation 1.3 Pre-operational checks are conducted 1.4 Instrumentation and test equipment is calibrated to manufacturer's specifications to meet workplace requirements 1.5 Health and safety hazards/maintenance requirements are identified and reported to appropriate personnel according to workplace reporting procedures
2 Operate and monitor the waste water treatment process	2.1 The waste water system is started up according to company procedures 2.2 Plant is operated within limits of manufacturer's specifications to meet workplace requirements 2.3 Equipment is monitored to confirm operating condition 2.4 Waste water quality is monitored, tested and adjusted as required to meet water standards as defined by site licence 2.5 First flush systems are operated during rainfall events 2.6 The workplace meets housekeeping standards
3 Analyse and respond to abnormal performance	3.1 Water condition and plant operating conditions are analysed to identify causes of abnormal performance 3.2 Corrective action is taken in accordance with workplace procedures in response to hazards, out-of-specification test results and/or plant performance 3.3 Emergency procedures are implemented as required according to workplace procedures and manufacturer's recommendations
4 Handover waste water treatment system	4.1 Workplace records are maintained in accordance with statutory requirements and workplace procedures 4.2 Handover is carried out according to workplace procedure 4.3 Waste water treatment operators are aware of system status and related equipment at completion of handover
5 Shutdown the waste water treatment system	5.1 The waste water treatment system is shut down according to workplace procedures 5.2 The waste water treatment system is prepared for storage in shut down mode 5.3 Maintenance requirements are identified and reported according to workplace reporting procedure

Required Skills and Knowledge

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

Required skills include:

Ability to:

- access workplace information to identify waste treatment requirements
- select, fit and use personal protective clothing and/or equipment
- confirm services are available and equipment is clean and ready for operation
- handle chemicals safely including follow correct preparation, handling and storage procedures and use of appropriate protective clothing and equipment
- conduct pre-start checks
- liaise with other work areas as required
- demonstrate wastewater system operating procedures in both manual and automatic modes
- demonstrate first flush system operating procedures in both manual and automatic modes
- monitor waste water system operation including monitoring:
  - chemical addition rates and residuals
  - temperatures
  - flow rates
  - equipment condition including calibration of instruments
  - tests as required
  - dissolved oxygen levels
  - pH levels
- conduct water quality tests
- take corrective action in response to out-of-specification results or non-compliance
- monitor supply and quality of waste water to and from the process
- report and/or record corrective action as required
- demonstrate emergency procedures to control chemical spills or other major incidents relevant to the workplace
- demonstrate shift handover procedure
- demonstrate an operational shut down procedure
- maintain workplace records to meet the requirements of the workplace and site environmental authority
- maintain work area to meet housekeeping standards

Required knowledge includes:

Knowledge of:

- relevant state OHS legislation, environmental acts and policies, standards and codes of practice relating to work responsibilities including awareness of standards set out in site license arrangements
- safe work procedures including awareness of health and safety hazards related to waste water system operation and associated control measures

- hierarchy of hazard control measures
- purpose and limitations of protective clothing and equipment
- methods used to render equipment safe to inspect, maintain and/or clean including lock-out, tag-out and isolation procedures
- water cycles for trade waste, storm water and sewerage including sources and flow patterns
- purpose and standards required by environmental agreements and responsibilities
- company policy relating to environmental performance
- consequences of non-conformance
- waste characteristics and treatment methods
- sampling and test procedures as appropriate
- purpose of chemicals used
- purpose of first flush systems and their relationship with the wastewater treatment system
- operating requirements and parameters
- water quality sampling and test procedures including the purpose of test and safe use, care and storage of relevant test equipment, interpretation and recording of results
- typical causes of non-conforming water quality and corrective action required
- equipment purpose and basic operating principles of waste water treatment equipment and methods
- requirements of both operational and long term shut down conditions to ensure the equipment is left in a safe state for the period of the shutdown and to minimise any delays in future start up
- housekeeping standards for the work area
- reporting and recording systems including both statutory and workplace requirements

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.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: • handle chemicals safely • demonstrate wastewater system operating procedures • demonstrate first flush system operating procedures • conduct water quality tests • take corrective action in response to out-of-specification results or non-compliance • monitor supply and quality of waste water • report and/or record corrective action • demonstrate emergency procedures • demonstrate shift handover procedure • demonstrate an operational shut down procedure.
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: • Waste water treatment systems and related chemicals • Test equipment • Relevant advice on environmental agreements • Operating procedures and related advice on equipment operation • Personal protective clothing and equipment • Communication systems and equipment • Housekeeping standards and procedures • Workplace information recording systems, requirements and procedures.
Method of assessment	Other units of competency relevant to the work role should be assessed in conjunction with this unit.
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 circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

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.	
Policies and procedures	Work is carried out in accordance with company policies and procedures, manufacturer's recommendations, legislative requirements, site licenses and trade waste service agreements and industrial awards and agreements. Legislation refers to environmental acts and regulations.
Workplace information	Workplace information can include: • Standard Operating Procedures (SOPs) • manufacturer's specifications
Equipment	Equipment may include • screens • pH correction • oil/grease skimmers • settling and treatment ponds • aeration units • lagoons • first flush systems and wetlands • pumps and valves.
Equipment status	Confirming equipment status involves • conducting relevant pre-start checks • confirming that housekeeping standards are met • all safety guards are in place • equipment is operational.
Hazards	Hazards typically include handling chemicals, manual handling and flammable gases.
Equipment operation and monitoring	Operation and monitoring of equipment and processes typically requires the use of control panels and systems.
Tests	Typical tests may include • pH • solids • colour/turbidity • flow rate

	• settling rate • settled volume • DO • BOD/COD levels.
Teamwork	Work may require the ability to work within a team environment.
Information systems	Information systems may be print or screen based.

Unit Sector(s)

Sugar Milling.