



Australian Government

Department of Education, Employment and Workplace Relations

FDFOP2054A Operate a water purification process

Revision Number: 1

FDFOP2054A Operate a water purification process

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a water purification process to produce water to meet production requirements.
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Application of the Unit

Application of the unit	This unit has application in a food processing production environment. It typically targets the production worker responsible for applying basic operating principles to the operation and monitoring of a water purification process and associated equipment. When operators are required to perform batch or product changeover procedures as part of this work process, the procedures should be used to customise the application of this unit. Where more detailed changeovers are carried out, FDFOP2011A Conduct routine maintenance, should be selected.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare the water purification equipment and process for operation	1.1. Materials are confirmed and available to meet operating requirements 1.2. Cleaning and sanitising requirements and status are identified and confirmed 1.3. Batch records or process documentation is completed 1.4. Processing/operating parameters are entered and/or confirmed as required to meet safety and production requirements 1.5. Equipment performance is checked and adjusted as required 1.6. Pre-start checks are carried out as required by workplace requirements
2. Operate and monitor the water purification process	2.1. The process is started and operated according to workplace procedures 2.2. Equipment is monitored to identify variation in operating conditions from those indicated in workplace documents or standard operating procedures 2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements 2.4. The process is monitored to confirm that purified water is produced to specification 2.5. Out-of-specification process outcomes are identified, rectified and/or reported to maintain the process within specification 2.6. The work area is maintained according to housekeeping standards 2.7. Work is conducted in accordance with workplace environmental guidelines 2.8. Workplace records are maintained according to workplace recording requirements
3. Shut down the water purification process	3.1. The appropriate shut down procedure is identified 3.2. The process is shut down according to workplace procedures 3.3. Workplace and/or batch documentation is completed 3.4. Maintenance requirements are identified and reported according to workplace reporting requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Ability to:

- access workplace information to identify water purification process requirements
- select, fit and use personal protective clothing and/or equipment
- respond appropriately to hazards, including chemical spills
- confirm supply of necessary materials and services
- conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for water purification process requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational
- start, operate, monitor and adjust water purification process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:
 - flow rates
 - pressure
 - operation of dosing equipment (where relevant)
 - alarms
- monitor supply and flow of materials to and from the water purification process
- take corrective action in response to out-of-specification results
- maintain a purification system free of physical, chemical and biological contaminants
- respond to and/or report equipment failure within level of responsibility
- locate emergency stop functions on equipment
- follow isolation and lock out/tag out procedures as required to take water purification process and related equipment off-line in preparation for cleaning/back flushing and/or maintenance within level of responsibility
- carry out cleaning, sanitising, regenerating and back-flushing as required
- complete workplace records as required
- maintain work area to meet housekeeping standards
- collect samples and conduct tests according to enterprise procedures
- conduct routine maintenance according to enterprise procedures
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge*****Knowledge of:***

- purpose and basic principles of the water purification process, including methods used to purify water appropriate to workplace requirements
- basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation
- services required and action to take if services are not available
- the flow of the water purification process and the effect of outputs on downstream processes
- quality characteristics to be achieved by the water purification process
- quality requirements of inputs to the purification process and the effect of variation on process performance
- operating requirements and parameters and corrective action required where operation is outside specified operating parameters
- typical equipment faults and related causes, including following troubleshooting and problem solving guidelines, and recognising signs and symptoms of faulty equipment and early warning signs of potential problems
- basic operating principles of process control as appropriate, including the relationship between control panels and systems and the physical equipment
- methods used to monitor the water purification process, such as inspecting, measuring and testing as required by the process
- inspection or test points (control points) in the water purification process and the related procedures and recording requirements
- Good Manufacturing Practice (GMP)/food safety requirements (as appropriate) associated with the purification process and related control measures
- common causes of variation and corrective action required
- operational health and safety (OHS) hazards and controls
- requirements of different shutdowns as appropriate to the water purification process and workplace production requirements, including emergency and routine shutdowns
- isolation, lock out and tag out procedures and responsibilities
- cleaning and sanitation procedures
- procedures and responsibility for reporting production and performance information
- environmental issues and controls relevant to the water purification process
- sampling and testing associated with water purification process monitoring and control where relevant
- routine maintenance procedures where relevant

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:

- conduct pre-start checks on machinery used for water purification
- start, operate, monitor and adjust process equipment to achieve required quality outcomes
- take corrective action in response to typical faults and inconsistencies
- complete workplace records as required
- apply safe work practices and identify OHS hazards and controls
- safely shut down equipment
- apply food safety procedures.

Context of and specific resources for assessment

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

- personal protective clothing and equipment
- work procedures, including advice on safe work practices, food safety, quality and environmental requirements
- information on equipment capacity and operating parameters
- production schedule
- specifications, control points and processing parameters
- water purification process, chemicals and related equipment and services
- water to be purified
- sampling schedules and test procedures and equipment as required
- documentation and recording requirements and procedures
- cleaning procedures, materials and equipment as

EVIDENCE GUIDE	
	required.
Method of assessment	This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be: • FDFOP2003A Clean equipment in place • FDFOP2004A Clean and sanitise equipment • FDFOP2011A Conduct routine maintenance • FDFOP2013A Apply sampling procedures • FDFOP2030A Operate a process control interface • MSL973001A Perform basic tests.
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

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 according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements

Legislative requirements

Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes:

- the Food Standards Code, including labelling, weights and measures legislation
- legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity

When applied to the pharmaceutical industry, relevant GMP codes apply in place of the Australian Food Standards Code and reference to food safety is replaced by GMP

Workplace information

Workplace information may include:

- standard operating procedures (SOPs)
- specifications
- production schedules and instructions
- manufacturers' advice
- standard forms and reports

Water purification equipment

Water purification equipment may include:

- dosing equipment
- storage tanks
- pumps
- valves
- distillation systems
- reverse osmosis systems
- UV light
- deionisation plants

RANGE STATEMENT	
	- softeners - carbon tanks - filters
Water produced	Water produced may include, but is not limited to: - purified water - deionised water - reverse osmosis (RO) - distilled water - water for injection (WFI)
Purification processes	Purification processes are typically continuous processes
Operation of equipment and processes	Operation of equipment and processes typically requires: the use of process control panels and systems

Unit Sector(s)

Unit sector	Operational
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		