Australian Government

Department of Education, Employment and Workplace Relations

SFIAQUA301C Oversee and undertake effluent and waste treatment and disposal

Release: 1

SFIAQUA301C Oversee and undertake effluent and waste treatment and disposal

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency involves overseeing effluent and waste collection and treatment and arranging for its disposal either on-farm or at an off-farm facility. It covers conveying information, selecting equipment and method of operation, and monitoring potential impacts of effluent and waste disposal. Skills to coordinate staff are covered by RTE3704A Coordinate worksite activities. Licensing, legislative, regulatory or certification requirements may apply to this unit. Therefore it will be necessary to check with the relevant state or territory regulators for current licensing, legislative or regulatory requirements before undertaking this unit.

Application of the Unit

Application of the unit	All enterprise or workplace procedures and activities are carried out according to ***relevant government regulations***, ***licensing and other compliance requirements***, including ***occupational health and safety*** (***OHS***) ***guidelines*** and ***ecologically sustainable development*** (***ESD***) ***principles***. Equipment operation, maintenance, repairs and calibrations are undertaken in a safe manner that conforms to manufacturer instructions. Appropriate ***personal protective equipment*** (***PPE***) is selected, checked, used and maintained.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare for treatment and disposal	1.1. ***Types of effluent and waste*** are identified, ***treatment programs*** consulted and options selected and confirmed with senior personnel. 1.2. ***Labour and resource requirements*** for treatment and disposal are determined and arranged with senior personnel. 1.3. ***Risk factors*** which could result in OHS incidents or ***adverse environmental impacts*** are identified and minimisation or contingency plans selected. 1.4. Strategies to achieve desired treatment and disposal options are planned and communicated effectively. 1.5. Equipment is inventoried, maintained and repaired.
2. Coordinate treatment and disposal of wastes and effluent	2.1. Effluent sampling requirements are adhered to and data collected and forwarded according to government requirements. 2.2. Collection and holding of wastes and mortalities is undertaken. 2.3. Contractor collection of ***biohazard materials*** is arranged and supervised. 2.4. On-site or off-site disposal of non-biohazard wastes is arranged and supervised. 2.5. On-site disposal sites are regularly monitored to ensure waste materials are contained.
3. Complete task activities	3.1. Clean up of work area, including repairs and storage of equipment, is supervised and condition report prepared. 3.2. Relevant waste treatment and disposal data, observations or information are recorded legibly and accurately, and any out of range or unusual records checked. 3.3. Compliance and other required reports are prepared and conveyed to senior personnel advising of the effectiveness of waste treatment and disposal, and recommendations made for improvements. 3.4. Options for improving efficiency through mechanisation or automation of process or activity, and use of specialised contract staff are researched and presented to senior personnel as potential improvements. 3.5. Staff are given feedback on their work performance.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• communicating recommendations on potential improvements • communicating with senior personnel on work schedule, labour and resource requirements • coordinating staff and contractors • negotiating with contractors • providing feedback on performance to staff • reporting orally and in writing on waste treatment and disposal activities to senior personnel • researching options for improvements. **Literacy skills used for**: • reading and interpreting treatment programs • reading guidelines and directives issued by government organisations • recording information relating to effluent and waste treatment programs • researching potential improvements. **Numeracy skills used for**: • estimating labour and resources required • taking and recording results of analyses.
Required knowledge
• ESD principles • equipment used in the collection, holding, transport and treatment of effluent and waste • government requirements pertaining to effluent and waste treatment and disposal • methods for treating effluent and waste on and off site and the relative risk and cost factors for each • types of wastes and their potential for impact on the environment, particularly biohazard materials • water and soil quality analyses.

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	
Critical aspects for assessment evidence required to demonstrate competence in this unit	Assessment must confirm the ability to: • coordinate effluent and waste collection, treatment and disposal in a safe, cost-effective manner consistent with ESD principles, OHS and government regulations. Assessment must confirm knowledge of: • ESD principles • methods for treating effluent and waste on and off site and the relative risk factors for each.
Context of and specific resources for assessment	Assessment is to be conducted at the workplace or in a simulated work environment with a range of effluent and waste products that could typically be produced as a result of aquaculture operations in the region. Resources may include: • functioning waste treatment disposal system as part of an aquaculture culture or holding structure • reference material for research • legislation and regulations • staff and contractors to coordinate.
Method of assessment	The following assessment methods are suggested: • written or oral short-answer testing • practical demonstration • project work related to an on-site scenario or based on a case study.
Guidance information for assessment	This unit may be assessed holistically with RTE3704A Coordinate worksite activities, and other units within a qualification.

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.	
Relevant government regulations, ***licensing and other compliance requirements*** may include:	• biodiversity and genetically modified organisms • biosecurity, translocation and quarantine • business or workplace operations, policies and practices • environmental hazard identification, risk assessment and control • OHS hazard identification, risk assessment and control.
OHS guidelines may include:	• appropriate workplace provision of first aid kits and fire extinguishers • codes of practice, regulations and/or guidance notes which may apply in a jurisdiction or industry sector • enterprise-specific OHS procedures, policies or standards • hazard and risk assessment of workplace, maintenance activities and control measures • induction or training of staff, contractors and visitors in relevant OHS procedures and/or requirements to allow them to carry out their duties in a safe manner • OHS training register • safe lifting, carrying and handling techniques, including manual handling, and the handling and storage of hazardous substances • safe systems and procedures for outdoor work, including protection from solar radiation, fall protection, confined space entry and the protection of people in the workplace • systems and procedures for the safe maintenance of property, machinery and equipment, including hydraulics and exposed moving parts • the appropriate use, maintenance and storage of

RANGE STATEMENT	
	PPE.

RANGE STATEMENT	
ESD principles may include:	• control of effluents, chemical residues, contaminants, wastes and pollution • control of weeds, pests, predators and diseases, and stock health maintenance • improving energy efficiency • increasing use of renewable, recyclable and recoverable resources • minimising noise, dust, light or odour emissions • preventing live cultured or held organisms from escaping into environment • reducing emissions of greenhouse gases • reducing energy use • reducing use of non-renewable resources • undertaking environmental hazard identification, risk assessment and control • undertaking facility quarantine, biosecurity and translocation of livestock and genetic material • using and recycling water, and maintaining water quality.
PPE may include:	• hard hat or protective head covering • hearing protection (e.g. ear plugs and ear muffs) • non-slip and waterproof boots (gumboots) or other safety footwear • protective eyewear, glasses and face mask • uniforms or overalls.
Types of effluent and wastes may include:	• biohazard material • from culture or holding structures • nitrogenous wastes • solid and soluble • toxic liquids and gases • uneaten food, settled solids or sediments.
Treatment programs may include:	• chemical, biological or mechanical filtration • integration with agriculture, such as hydroponics and aquaponics • polyculture • recycling or reuse • settlement ponds/tanks.
Labour requirements may	• specialised equipment operators or contractors • transport operators

RANGE STATEMENT	
include:	• vehicle or vessel operators • workers.

RANGE STATEMENT	

Resource requirements may include:	• collection equipment:
	  • absorbent materials
	  • nets
	  • sediment ponds, sumps and gulley traps
	  • submersible and sludge pumps
	  • water and benthic samplers
	• holding and on-farm transport equipment:
	  • bins
	  • buckets
	  • plastic bags, boxes, metal canisters and packing materials
	  • tanks
	  • troughs
	• laboratory equipment:
	  • acid washed bottles
	  • autoclaves
	  • balance
	  • chemicals and reagents
	  • fume hoods
	  • ovens
	  • spectrophotometer
	  • vacuum filtration
	• PPE
	• photographs (video or stills)
	• quadrants and rulers
	• treatment equipment and facilities
	• vessels, vehicles, trucks and trailers
	• water, waste and soil samples.

Risk factors may include:	• absent staff • adverse weather conditions • equipment failure or breakdown • moribund, stressed or dying stock • OHS.
Adverse environmental impacts may include:	• build up of hydrogen sulphide, ammonia, nitrites, nitrates, phosphorus, methane or other toxins • changes in benthos • effluent or waste spillage or entry into environment

RANGE STATEMENT	
	• hypernutrification and eutrophication • increase in bacterial levels • stock death, stress, damage or contamination • transfer of pathogens.
Biohazard materials may include:	• anti-fouling agents • bacteria, parasites or other pathogens • herbicides • hormone and growth promoters • moribund or dead stock • pesticides • sodium hypochloridehypochlorite and other acids • therapeutic agents, such as malachite green, formalin and antibiotics.

Unit Sector(s)

Unit sector	Aquaculture operations

Co-requisite units

Co-requisite units		

Competency field

Competency field	