

**Modification history**

| Release   | Comments   |
|-----------|--|
| Release 1 | This version released with SFI Seafood Industry Training Package Version 1.0 |

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| <b>SFIAQU212</b>         | <b>Operate and maintain a recirculating aquaculture system</b>   |
| <b>Application</b>       | <p>This unit of competency describes the skills and knowledge required to operate, monitor and maintain a recirculating aquaculture system (RAS) to keep water quality and environmental conditions within specified ranges for cultured or held stock.</p> <p>The unit applies to individuals who carry out routine maintenance and minor repairs on the water treatment components of a recirculating aquaculture system as used in the seafood industry and within an aquascape or holding tank in the ornamental or pet sector, under the direction of a supervisor.</p> <p>All work must be carried out to comply with workplace procedures, according to state/territory health and safety, food safety, biosecurity and environmental regulations, legislation and standards that apply to the workplace.</p> <p>No licensing, legislative or certification requirements apply to this unit at the time of publication.</p> |
| <b>Prerequisite Unit</b> | Nil  |
| <b>Unit Sector</b>       | Aquaculture (AQU)  |

| Elements  | Performance Criteria   |
|---|--|
| <i>Elements describe the essential outcomes.</i>          | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>   |
| 1. Prepare to operate a recirculating aquaculture system  | 1.1 Receive and confirm instructions with supervisor on water treatment components' operational requirements<br>1.2 Select, fit and adjust personal protective equipment as required<br>1.3 Locate and carry out routine pre-operational checks of components of the recirculating aquaculture system according to workplace procedure<br>1.4 Detect faulty components and report to supervisor<br>1.5 Identify abnormal operating and environmental conditions within the culture or holding structures or systems and report to supervisor |
| 2. Operate and monitor a recirculating aquaculture system | 2.1 Operate automatic or mechanised equipment according to workplace procedures<br>2.2 Measure critical flow rates and other water quality parameters, and record data according to workplace procedures<br>2.3 Adjust operating components to optimise conditions for the culture or holding species<br>2.4 Check and test backup components for operational capacity<br>2.5 Report abnormal or non-standard conditions, and other risks to supervisor  |

| Elements   | Performance Criteria   |
|--|--|
| <i>Elements describe the essential outcomes.</i>             | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>   |
| 3. Maintain and repair a recirculating aquaculture system    | 3.1 Confirm work plan or schedule and risks and contingency plans with supervisor<br>3.2 Collect basic tools, equipment, including personal protective equipment, spare parts and repair materials and take to worksite<br>3.3 Make basic repairs to sub-standard equipment and calibrate equipment following safe work practices<br>3.4 Service components and replace or repair worn or damaged parts or components according to supervisor instructions<br><u>3.5 Consult supervisor to ensure that repairs meet all environmental and biosecurity regulatory requirements prior to restoring water supply and disposal systems</u><br>3. <del>6</del> Return components and water supply and disposal systems to working order<br>3. <del>7</del> Check system for serviceability and performance, and report problems to supervisor |
| 4. Finalise operation, monitoring and maintenance activities | 4.1 Clean work area and dispose of waste materials safely according to workplace procedures<br>4.2 Check and store tools and equipment, reporting any identified repair requirements to supervisor<br>4.3 Record relevant data and observations, and report any abnormal records to supervisor   |

| <b>Foundation Skills</b>   |  |
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| <i>This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.</i> |  |
| <b>Skill</b>   | <b>Description</b>   |
| Reading  | <ul style="list-style-type: none"> <li>Interprets text in workplace procedures and instructions</li> </ul>   |
| Writing  | <ul style="list-style-type: none"> <li>Completes workplace maintenance and repair forms legibly and accurately</li> </ul>  |
| Numeracy   | <ul style="list-style-type: none"> <li>Analyses data to complete basic calculations</li> <li>Estimates and calculates volume and quantities of inputs and outputs of liquids, gases and solids</li> <li>Sets and adjusts measurement scale to calibrate equipment</li> </ul> |
| Oral communication   | <ul style="list-style-type: none"> <li>Asks questions to clarify job requirements</li> <li>Describes safety risks and abnormal records to supervisor using correct terminology</li> </ul>  |
| Reading  | <ul style="list-style-type: none"> <li>Interprets text in workplace procedures and instructions</li> </ul>   |

| <b>Unit Mapping Information</b>                                      |  |  |                           |
|--|--|--|---------------------------|
| <b>Code and title current version</b>                                | <b>Code and title previous version</b>   | <b>Comments</b>  | <b>Equivalence status</b> |
| SFIAQU212<br>Operate and maintain a recirculating aquaculture system | SFIAQUA219B<br>Operate and maintain high technology water treatment components | Updated to meet Standards for Training Packages<br><br>Revised title<br><br>Minor changes to elements and performance criteria for clarity | Equivalent unit           |

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| <b>Links</b> | Companion Volumes, including Implementation Guides, are available at VETNet:<br><a href="https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273">https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273</a> |
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| <b>TITLE</b>   | <b>Assessment requirements for SFIAQU212 Operate and maintain a recirculating aquaculture system</b>   |
| <b>Performance Evidence</b>  |  |
| <p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has safely operated and maintained at least one recirculating aquaculture system on at least one occasion, including:</p> <ul style="list-style-type: none"> <li>• communicating with and reporting to supervisor about the operation and maintenance of water treatment components</li> <li>• fitting and adjusting personal protective equipment</li> <li>• carrying out the required maintenance and repairs to components</li> <li>• carrying out routine monitoring and checks of equipment, flow rates and water quality</li> <li>• completing accurate records on the operation and maintenance of water treatment components</li> <li>• cleaning work area and storing tools and equipment after maintenance and repair activities.</li> </ul>   |  |
| <b>Knowledge Evidence</b>  |  |
| <p>An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:</p> <ul style="list-style-type: none"> <li>• basic relationship of inputs (stock, feed, energy, water and labour) to outputs (wastes, product and water quality)</li> <li>• <u>overview of complexity of system and interrelationship of components</u></li> <li>• <u>overview of environmental and biosecurity regulatory requirements</u></li> <li>• conditions likely to impact on water flow</li> <li>• health and safety relevant to operating and maintaining water treatment components</li> <li>• operation and maintenance of automatic or mechanised equipment</li> <li>• features of water quality and optimal and critical limits for various parameters and non-standard conditions.</li> </ul>  |  |
| <b>Assessment Conditions</b>   |  |
| <p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"> <li>• physical conditions: <ul style="list-style-type: none"> <li>• skills must be demonstrated in an aquaculture workplace setting or an environment that accurately represents workplace conditions</li> </ul> </li> <li>• resources, equipment and materials: <ul style="list-style-type: none"> <li>• basic tools and equipment to complete repairs and maintenance</li> <li>• equipment to operate the system and maintain water quality</li> <li>• personal protective equipment</li> <li>• recirculating aquaculture system (RAS) with high technology components</li> <li>• spare parts and repair materials</li> <li>• water monitoring equipment</li> <li>• data or recording sheets</li> </ul> </li> <li>• specifications: <ul style="list-style-type: none"> <li>• specific instructions, work plan or schedule and workplace procedures for operating and maintaining high technology water treatment components</li> </ul> </li> <li>• relationships: <ul style="list-style-type: none"> <li>• evidence of interactions with supervisor.</li> </ul> </li> </ul> <p>Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.</p> |  |
| <b>Links</b>   | Companion Volumes, including Implementation Guides, are available at VETNet: <a href="https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273">https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=e31d8c6b-1608-4d77-9f71-9ee749456273</a> |