



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFSUG221A Operate an ash separation system**

**Release: 1**

## **FDFSUG221A Operate an ash separation system**

### **Modification History**

New Unit based on *SUGPARS2A Operate an ash separation system*.

### **Unit Descriptor**

This unit describes the outcomes required to operate a system to separate ash solids from boiler sluice water by use of clarifiers and filters.

### **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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
1 Prepare the ash separation system for operation	1.1 Materials are confirmed and available to meet requirements 1.2 Services are confirmed as available and ready for operation 1.3 Equipment is checked to confirm readiness for use 1.4 The ash separation process is set to meet production requirements 1.5 Health and safety hazards/maintenance requirements are identified and reported to appropriate personnel according to workplace reporting procedures
2 Operate the ash separation process	2.1 The ash separation system is operated within limits of manufacturer's specifications to meet workplace requirements 2.2 The ash separation system is monitored to confirm performance is maintained within manufacturer's specifications to meet workplace requirements 2.3 The workplace meets housekeeping standards
3 Analyse and respond to abnormal performance	3.1 System operating conditions are monitored to identify causes of abnormal performance 3.2 Corrective action is taken in accordance with workplace procedures in response to hazards and abnormal plant performance 3.3 Emergency procedures are implemented as required according to workplace procedures and manufacturer's recommendations
4 Handover ash separation operations	4.1 Operating log is maintained in accordance with workplace procedures 4.2 Handover is carried out according to workplace procedure 4.3 System operators are aware of system and related equipment status at completion of handover
5 Complete ash separation operations	5.1 Ash is collected and disposed according to company procedures 5.2 Maintenance requirements are identified and reported according to workplace reporting procedure 5.3 Workplace information is recorded according to workplace recording requirements

## Required Skills and Knowledge

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

### Required skills include:

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#### Ability to:

- access workplace information ash separation requirements
- select, fit and use personal protective clothing and/or equipment
- confirm status of equipment and that services are available
- conduct pre-start checks
- demonstrate start-up procedures for preparing and operating each equipment component in the system
- demonstrate safe chemical preparation and handling
- monitor the ash separation system including visual inspection and conducting tests to monitor characteristics such as:
  - moisture content of ash going out of the system
  - available storage capacity of ash holding area
  - filter performance and condition
- take corrective action in response to abnormal or unacceptable performance
- report and/or record corrective action as required
- demonstrate shift handover procedure and confirm that replacement operators are aware of equipment status and operating requirements prior to completing handover
- record operating information
- maintain work area to meet housekeeping standards

### Required knowledge includes:

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#### Knowledge of:

- relevant state OHS legislation, standards and codes of practice relating to work responsibilities
- safe work procedures including awareness of health and safety hazards related to operation of the ash removal system and associated 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
- properties of ash or soot and the impact on filter operation
- functions and operating principles of ash separation system and related equipment
- relationship between vacuum, filter speed and cake permeability
- operating requirements and parameters
- test methods
- common causes of variation and corrective action required
- procedures for responding to emergency situations including safe shutdown procedure
- handover and long term shut down and storage procedures

- environmental issues and controls
- procedures for containing and managing ash spills
- housekeeping standards for the work area
- reporting and recording systems

## Evidence Guide

<p>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.</p>	
<p>Overview of assessment</p>	<p>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.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Evidence of ability to:</p> <ul style="list-style-type: none"> <li>• Conduct pre-start checks</li> <li>• Demonstrate start-up procedures</li> <li>• Demonstrate safe chemical preparation and handling</li> <li>• Monitor the ash separation system</li> <li>• Take corrective action in response to abnormal or unacceptable performance</li> <li>• Report and/or record corrective action</li> <li>• Demonstrate shift handover procedure</li> <li>• Record operating information</li> <li>• Maintain work area to meet housekeeping standards.</li> </ul>
<p>Context of and specific resources for assessment</p>	<p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• Ash separation system and related equipment</li> <li>• Relevant codes and standards</li> <li>• Operating procedures and related advice on equipment operation</li> <li>• Personal protective clothing and equipment</li> <li>• Communication systems and equipment</li> <li>• Housekeeping standards and procedures</li> <li>• Workplace information recording systems, requirements and procedures.</li> </ul>
<p>Method of assessment</p>	<p>Other units of competency relevant to the work role should be assessed in conjunction with this unit. This may include:</p> <p>FDFOP2030A Operate a process control interface.</p>
<p>Guidance information for assessment</p>	<p>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.</p>



## Range Statement

<p>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.</p>	
<b>Policies and procedures</b>	Work is carried out in accordance with company policies and procedures, licensing requirements, manufacturer's recommendations, legislative requirements, codes of practice and industrial awards and agreements.
<b>Codes of practice</b>	Codes of practice include the Sugar Milling Operations Industry Code of Practice.
<b>Workplace information</b>	Workplace information can include: <ul style="list-style-type: none"> <li>• Standard Operating Procedures (SOPs)</li> <li>• manufacturer's specifications.</li> </ul>
<b>Equipment</b>	Equipment may include: <ul style="list-style-type: none"> <li>• grate cleaning system</li> <li>• ash and soot blowing equipment</li> <li>• ash removal system</li> <li>• pumps</li> <li>• weirs</li> <li>• tanks</li> <li>• belt and rotary filters</li> <li>• chemical addition systems</li> <li>• clarifier.</li> </ul>
<b>Hazards</b>	Hazards typically include working with airborne particulates containing silica, chemical handling and use of hot water.
<b>Ash separation</b>	Ash separation may involve use of clarifiers followed by a filter, use of screens or by filter only.
<b>Services</b>	Services may include: <ul style="list-style-type: none"> <li>• power and mill</li> <li>• general mill water supply</li> <li>• instrumentation air.</li> </ul>
<b>Chemicals</b>	Chemicals may include: <ul style="list-style-type: none"> <li>• caustic soda</li> <li>• flocculants.</li> </ul>



<b>Tests</b>	Typical test requirements include: <ul style="list-style-type: none"><li>• pH</li><li>• settling tests</li><li>• clarity or turbidity.</li></ul>
<b>Equipment status</b>	Confirming equipment status involves <ul style="list-style-type: none"><li>• conducting relevant pre-start checks</li><li>• confirming that housekeeping standards are met</li><li>• all safety guards are in place</li><li>• equipment is operational.</li></ul>
<b>Equipment operation and monitoring</b>	Operation and monitoring of equipment and processes typically requires the use of control panels and systems.
<b>Teamwork</b>	Work may require the ability to work within a team environment.
<b>Information systems</b>	Information systems may be print or screen based.

## Unit Sector(s)

Sugar Milling.