



**Australian Government**

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

# **FDFSUG306A Monitor a sugar mill powerhouse**

**Release: 1**

## **FDFSUG306A Monitor a sugar mill powerhouse**

### **Modification History**

New Unit based on *SUGPMPH3A Monitor a powerhouse*.

### **Unit Descriptor**

This unit describes the outcomes required to operate and monitor one or more turbines with attached alternators supplying factory power. This role is typically carried out in liaison with an electrician.

### **Application of the Unit**

This unit has application in the sugar milling industry and applies to both continuous and short term operation including start-up and shut down after a prolonged break.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

FDFSUG217A     Operate a turbine

### **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 to operate the powerhouse	1.1 Personal protective clothing and equipment is selected and used 1.2 Run warm up sequence of turbines and alternator/s in preparation for handover from local powerhouse to powerhouse consul
2 Monitor powerhouse operation	2.1 Powerhouse output is monitored against site requirements 2.2 Equipment is monitored to confirm operating condition 2.3 The workplace meets housekeeping standards
3 Analyse and respond to abnormal performance	3.1 Operating data 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 OHS hazards and abnormal plant performance 3.3 Emergency procedures are implemented as required according to workplace procedures and manufacturer's recommendations
4 Handover powerhouse operation	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 Powerhouse operators are aware of powerhouse status and related equipment at completion of handover
5 Shutdown the powerhouse	5.1 The powerhouse is shut down according to workplace procedures and manufacturer's recommendations 5.2 The powerhouse is prepared for storage in shut down mode 5.3 Maintenance requirements are identified and reported

## Required Skills and Knowledge

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

### Required skills

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#### Ability to:

- access workplace information on power requirements
- select, fit and use personal protective clothing and/or equipment
- confirm that turbine/s and alternator/s are ready for warm up/operation
- conduct warm up sequence
- liaise with electrician as required to synchronise with external power supply
- handover control to operating consul
- liaise with other work areas to advise of powerhouse status
- demonstrate run up procedures in both manual and automatic modes
- monitor powerhouse operation including monitoring:
  - bearing temperature
  - steam pressure
  - speeds
  - oil flows
  - power factor
  - voltage
  - power frequency
  - equipment condition including noise and vibration
- 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
- demonstrate emergency trip procedure and related re-start
- 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 powerhouse operation and associated control measures
- hierarchy of hazard control measures
- purpose and limitations of protective clothing and equipment
- purpose and basic principles of power generation including the impact of out of range frequency voltage on equipment operation

- site procedures for the import and export of power
- operating principles of powerhouse and instrumentation components, purpose and operation including the requirement to bar over alternators on start-up, shut down and emergency stops
- basic operating principles of process control where relevant including the relationship between control panels and systems and the physical equipment
- layout of powerhouse including location of overload protection equipment/switches
- methods used to render equipment safe to inspect, maintain and/or clean including lock-out, tag-out and isolation procedures
- operating requirements and parameters
- procedures for responding to emergency situations including safe shutdown procedure
- handover and long term shut down and storage procedures
- environmental issues and controls including controlling oil spillages
- housekeeping standards for the work area
- reporting and recording systems including both statutory and workplace requirements

## 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>• access workplace information on power requirements</li> <li>• confirm that turbine/s and alternator/s are ready for warm up/operation</li> <li>• conduct warm up sequence</li> <li>• handover control to operating consul</li> <li>• demonstrate run up procedures in both manual and automatic modes</li> <li>• monitor powerhouse operation</li> <li>• take corrective action in response to abnormal or unacceptable performance</li> <li>• demonstrate shift handover procedure</li> <li>• demonstrate emergency trip procedure and related re-start</li> <li>• record operating information</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>• Turbine with an attached alternator</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> </ul>
<p>Method of assessment</p>	<p>Other units of competency relevant to the work role should be assessed in conjunction with this unit.</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, 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) and</li> <li>• manufacturer's specifications</li> </ul>
<b>Powerhouse equipment</b>	Equipment includes <ul style="list-style-type: none"> <li>• turbines with attached alternators.</li> </ul> <p>Operation and monitoring of equipment and processes typically requires the use of control panels and systems.</p>
<b>Hazards</b>	Hazards typically include working around hot surfaces, manual handling, fuel and steam leaks.
<b>Services</b>	Services may include: <ul style="list-style-type: none"> <li>• steam</li> <li>• water</li> <li>• mill and</li> <li>• instrumentation</li> <li>• air and</li> <li>• power</li> </ul>
<b>Teamwork</b>	Work may require the ability to work within a team environment.
<b>Information systems</b>	Information systems may be print or instrumentation based.

## **Unit Sector(s)**

Sugar Milling