Modification history

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| Release | Comments |
| Release 1 | This version released with PPM Training Package Version 1.0. |

| PPMEPG440 | Troubleshoot and rectify power generation system |
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| Application | This unit of competency describes the outcomes required to identify, diagnose and rectify power quality and distribution faults and report operational data relevant to power generation systems in the pulp or paper industry.This unit applies to senior operators and production specialists who troubleshoot and rectify power generation systems, in a pulp and paper manufacturing facility. This typically involves working in a facility with complex integrated equipment and continuous operations.Licensing, legislative, regulatory, or certification requirements apply to this unit in some states and territories at the time of publication and may differ according to jurisdiction. |
| Prerequisite Unit | Nil |
| Unit Sector | Pulp and Paper Manufacturing (PPM) |

| Elements | Performance Criteria |
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| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element. |
| 1. Identify and diagnose causes of faults | 1.1. Identify faults according to work health and safety (WHS) and environmental procedures, safe working requirements, productivity requirements, Standard Operating Procedures (SOP), risks and hazard identification and housekeeping requirements.1.2. Interpret abnormal plant conditions and system alarms to determine type and location of fault.1.3. Identify faults through physical inspections of plant, equipment and processes.1.4. Identify and locate the cause and source of fault and take appropriate actions.1.5. Access and refer to relevant historical data to confirm fault diagnosis.1.6. Communicate diagnosis to relevant personnel as required. |
| 2. Rectify faults | 2.1. Rectify faults within work health and safety (WHS) and environmental procedures, safe working requirements, and Standard Operating Procedures (SOP).2.2. Implement shutdown and isolation procedures, as required.2.3. Repair or replace faulty equipment2.4. Adjust process and equipment to restore normal operations.2.5. Verify restoration to normal operations and communicate to relevant personnel. |
| 3. Record and report operational data | 3.1. Document variations from required production output and systems operation faults.3.2. Record troubleshooting process and corrective action.3.3. Communicate relevant information to appropriate personnel in accordance with operational requirements. |

| Foundation SkillsThis 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. |
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| Skill | Description |
| Numeracy skills to: | * estimate and calculate using measuring equipment relevant to power generation systems and to aid troubleshooting
* interpret instruments, gauges and data recording equipment.
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| Reading skills to: | * read and interpret documentation, procedure manuals and test results.
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| Writing skills to: | * record and report test results and rectifications accurately and legibly using correct technical vocabulary.
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| Problem solving skills to: | * maintain situational awareness in the work area
* analyse and use sensory information to adjust process and to maintain and co-ordinate safety, quality and productivity.
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| Technology skills to: | * use electronic and other control systems to control equipment and processes for power generation systems.
* access, navigate and enter computer based information.
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| Unit Mapping Information |
| Code and title current version | Code and title previous version | Comments | Equivalence status |
| PPMEPG440 Troubleshoot and rectify power generation system | FPPEPG440A Troubleshoot and rectify power generation system |  | Equivalent unit |

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| Links | Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=12998f8d-d0ac-40bc-a69e-72a600d4fd93 |

| TITLE | Assessment requirements for PPMEPG440 Troubleshoot and rectify power generation system |
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| Performance Evidence |
| A person demonstrating competency in this unit must satisfy all of the elements and performance criteria of this unit, and must be able to provide evidence that they can:* identifying, diagnosing and rectifying faults in plant, equipment and processes relevant to power generation systems, at least twice in line with required enterprise intervals, in a pulp or paper manufacturing facility
* selecting and using appropriate troubleshooting methods for power generation systems
* reading and interpreting documentation, procedures and reports relevant to troubleshooting and power generation systems
* communicating effectively and working safely with others, in the work area when troubleshooting and rectifying power generation systems.
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| Knowledge Evidence |
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| A person competent in this unit must be able to demonstrate knowledge of:* organisational procedures relevant to workplace health and safety with particular emphasis on:
* use of personal protective equipment (PPE)
* equipment lock out and isolation procedures
* handling chemicals and hazardous substances, including spill and disposal guidelines
* plant clearance requirements
* emergency procedures and responses
* job safety analysis documentation and processes
* plant permit systems and processes
* high risk load shifting licensing requirements where relevant
* major hazard facility requirements where relevant
* troubleshooting methods applicable to the operation power generation systems
* documentation and procedures relevant to troubleshooting and rectifying power generation systems in the pulp and paper industry including:
* Standard Operating Procedures (SOP)
* productivity requirements
* quality procedures
* environmental sustainability requirements/practices
* machinery and plant manufacturing operating manuals
* enterprise policies and procedures
* operational logs and reports
* maintenance logs
* Material Safety Data Sheets (MSDS)
* process and instrument diagrams
* power generation systems, processes and associated services sufficient to troubleshoot including:
* plant layout
* theory of operation
* causes and effects of adjustments made to power generation system and processes
* relationships between power generation system and associated services
* sampling and testing for plant and system operations, and process steam supply monitoring – purpose, standards and procedures as per site agreements
* types, causes and effects of power distribution systems and power generation plant shutdowns
* effect of steam quality on turbine operation
* operational tolerances of the turbine system and the effect of operating outside these tolerances
* AC/DC generation principles
* output control and regulation principles
* power factor characteristics, effects and correction techniques
* electrical isolation procedures
* principles of operation of transformers and circuit protection systems
* electronic and other control systems, operation and application to make appropriate adjustments that control power generation systems
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| Assessment Conditions |
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| The following resources must be made available:* access to the full range of equipment involved in integrated continuous manufacturing of power generation systems in a pulp or paper manufacturing facility, including chemical products and systems
* electronic control systems which includes Digital Control System (DCS), touch screens or robotics
* sample workplace documentation, procedures and reports including SOP, quality procedures, environmental sustainability requirements/practices, plant manufacturing operating manuals, enterprise policies and procedures, plant isolation documentation, safe work documentation including plant clearance, job safety analysis, permit systems.
* maintenance tools and equipment and consumables for power generation systems
* personal protective equipment suitable for troubleshooting power generation systems
* local power authority regulations for starting up power generation systems
* details of production requirements to plan power generation levels
* template operating log for recording troubleshooting processes and power generation performance
* relevant personnel for the purposes of communicating information
* organisational workplace health and safety and standard operating procedures for power generation system

Competency is to be assessed in the workplace or in a productive environment that accurately reflects performance in a workplace.Assessor requirements Assessors must:* hold the appropriate assessor competency standards as outlined in regulations; and
* be able to demonstrate vocational competencies at least to the level being assessed; and
* be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and assessor competence.
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