

<b>Title</b>	<b>Troubleshoot a paper making operation</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	People credited with this unit standard are able to: analyse a paper making operation and propose corrective actions to optimise the operation; troubleshoot a paper making operation for a range of production problems and make recommendations; and review and reflect on troubleshooting techniques applied and identify improvements.
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<b>Classification</b>	Wood Fibre Manufacturing > Paper Making
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<b>Available grade</b>	Achieved
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### Guidance Information

#### 1 Legislation and references

Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:

- Hazardous Substances and New Organisms Act 1996;
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

#### 2 Definitions

*Paper making operations* refer to stock preparation, formation, pressing, drying, calendaring, coating, and rewinding operations.

*Production problem* refers to a problem affecting production rate and product quality that arises from issues outside the operation of a single piece of plant or equipment.

#### 3 Assessment information

Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, worksite documentation and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

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### Outcomes and performance criteria

#### Outcome 1

Analyse a paper making operation and propose corrective actions to optimise the operation.

**Performance criteria**

- 1.1 Parts of the paper making process that are not controlled at standard conditions are analysed, and reasons for the deviations, and corrective actions are proposed to minimise their impact on production rates and product quality.
- 1.2 Incoming stock parameters, chemical strengths and flows, and steam temperatures and pressures that identify potential problems for the paper making operations are analysed, and remedial actions are proposed to minimise the impact of these deviations on production rate and product quality.
- 1.3 Equipment condition that identifies potential problems for the paper making operation is inspected, and remedial actions are proposed to overcome the problems identified and minimise their impact on production rates and product quality.
- 1.4 In-process paper making parameters that identify variations and potential problems for the paper making operation are analysed, and remedial actions are proposed to minimise the impact of these deviations on production rate and product quality.

Range in-process paper making parameters may include but are not limited to – furnish freeness, furnish pH, vacuum pressures, press pressures, forming speed, efflux ratios, white water levels, white water pH, drying hood pressures and temperatures, condensate levels, drying hood humidity, section speed ratios, web temperature, grammage and thickness variations.

**Outcome 2**

Troubleshoot a paper making operation for a range of production problems and make recommendations.

**Performance criteria**

- 2.1 Equipment failures at paper making process stages are identified and their relationship to the specified production problem is investigated.
- 2.2 Bottlenecks in the paper making operation that may relate to the specified production problem are identified and investigated.
- 2.3 The potential for production rate and product quality improvement is identified from the investigation.
- 2.4 Potential solutions that would resolve a specific production problem are identified and justified using problem solving techniques.
- 2.5 Recommendations are made on the actions required to confirm the analysis and implement the best solution to the identified production problem.

**Outcome 3**

Review and reflect upon the troubleshooting techniques applied and identify improvements.

**Performance criteria**

- 3.1 Troubleshooting technique applied is reviewed, and alternative interpretations are gathered from other members of the operations team.
- 3.2 Troubleshooting outcomes from the review are reflected upon, and improvements are identified.

<b>Planned review date</b>	31 December 2028
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 2006	31 December 2024
Review	2	24 October 2014	31 December 2025
Review	3	30 November 2023	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0173
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.