Title	**Troubleshoot paper making operations**		
Level	**4**	**Credits**	**20**

Purpose	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 specified production problem and make recommendations; and review troubleshooting techniques and identify improvements.

Classification	Wood Fibre Manufacturing > Paper Making

Available grade	Achieved

Explanatory notes

1 Definitions
Paper making operations refers 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.

2 The following apply to the performance of all outcomes of this unit standard:
- a All work practices must meet recognised codes of practice and documented worksite health and safety and environmental procedures (where these exceed code) for personal, product, and worksite health and safety, and must meet the obligations required under current legislation, including the Health and Safety in Employment Act 1992, the Resource Management Act 1991, and their subsequent amendments.
- b All work practices must meet documented worksite operating procedures. This includes the recording (by electronic or non-electronic means) of activities, events, and decisions.
- c All communications made in relation to this unit standard must be in accordance with worksite procedures for content, recipient, timing, and method.

Outcomes and evidence requirements

Outcome 1

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

Evidence requirements

1.1 Analysis of standard operating procedures identifies parts of the paper making process that are not controlled at standard conditions, and reasons for the deviations, and corrective actions are proposed to minimise their impact on production rates and product quality.

1.2 Analysis of incoming stock parameters, chemical strengths and flows, and steam temperatures and pressures identifies potential problems for the paper making operations, and remedial actions are proposed to minimise the impact of these deviations on production rate and product quality.

1.3 Inspection of equipment condition identifies potential problems for the paper making operation, and remedial actions are proposed to overcome the problems identified and minimise their impact on production rates and product quality.

1.4 Analysis of in-process paper making parameters identifies variations and potential problems for the paper making operation, and remedial actions are proposed to minimise the impact of these deviations on production rate and product quality.

Range in-process paper making parameters include – 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 specified production problem and make recommendations.

Evidence requirements

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 the 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 troubleshooting techniques and identify improvements.

Evidence requirements

3.1 Analyses undertaken are reviewed and alternative interpretations are sought from other members of the operations team.

3.2 The results of investigations undertaken to resolve the production problem are reviewed and alternative interpretations are sought from other members of the operations team.

3.3 Improvements in personal analysis and investigation techniques are identified for use in future.

Planned review date	31 December 2019

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 2006	N/A
Review	2	24 October 2014	N/A

Consent and Moderation Requirements (CMR) reference	0173

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.