

Title	Control a pulp or paper machine broke system		
Level	4	Credits	5

Purpose	People credited with this unit standard are able to: demonstrate knowledge of a broke system; operate a pulp or paper machine broke system; and monitor and control the performance of a pulp or paper machine broke system.
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Classification	Wood Fibre Manufacturing > Pulp and Paper Manufacturing Skills
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Available grade	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

Broke refers to out-of-specification finished product or partially manufactured product.

Operating parameters refer to the boundary conditions in which the operations are carried out in the pulp or paper machine broke system.

Operating procedures refer to the process(es) that are worked through, e.g. standard operating procedure (SOP) in the pulp or paper machine broke system.

Worksite documentation refers to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace, and are consistent with manufacturer's requirements. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, sustainability, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the pulp and paper industry.

3 Range

Machine broke system includes – pumps, valves, pipelines, storage tanks used in storing broke.

4 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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of a broke system.

Performance criteria

1.1 Purpose of broke system is explained.

1.2 Process parameters and capability of the broke system at the candidate's worksite are explained.

Range process parameters and capability may include but are not limited to – types of broke, pH selection and control, volume and capacity, consistency, chemical addition, critical levels.

1.3 Operating components and process controls of broke system are described, and their purpose and operation are explained.

Range components may include but are not limited to – wet end pulper, dry end pulper, showers, pumps, storage tanks, pipework and valves.

1.4 Hazards associated with broke systems are identified and actions to be taken to minimise, or eliminate the hazards are explained.

Range hazards may include but are not limited to – moving plant, water, electricity, chemicals.

1.5 Consequences of non-conformance with worksite operating procedures are explained.

1.6 Roles and responsibilities of the broke system operator are explained.

Range roles and responsibilities may include but are not limited to – environmental, pulping times, consistency.

Outcome 2

Operate a pulp or paper machine broke system.

Performance criteria

- 2.1 Safe work practices associated with operating paper machine broke system are demonstrated.
- Range practices may include but are not limited to – isolation procedures, lock-outs or tag-outs, emergency stops, machine guarding, wearing appropriate safety equipment.
- 2.2 Broke system is set up, started up, operated, and shut down.
- 2.3 Operating parameters are set and adjusted to enable production requirements to be achieved.
- Range operating parameters – consistency, chest levels, fibre recovery, flow rates required to machine;
production requirements – paper quality, production rate.
- 2.4 Essential care and housekeeping requirements for the broke system is carried out.

Outcome 3

Monitor and control the performance of a pulp or paper machine broke system.

Performance criteria

- 3.1 Broke system is monitored and parameters are controlled in accordance with operating parameters.
- Range control parameters – consistency, chest levels, fibre recovery, flow required to machine.
- 3.2 Operating and equipment faults and malfunctions are identified, and relevant corrective actions are taken.
- Range operating faults and malfunctions – pump failure, blockages, spillage;
equipment faults and malfunctions – electrical, mechanical, instrumentation.
- 3.3 Output product for broke flow and consistency is monitored to meet specified requirements.
- 3.4 Production, maintenance, and quality records and completed.

Planned review date	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	22 February 1995	31 December 2024
Revision	2	27 January 1997	31 December 2024
Review	3	25 February 1999	31 December 2024
Review	4	18 December 2006	31 December 2024
Review	5	24 October 2014	31 December 2025
Review	6	30 November 2023	N/A

Consent and Moderation Requirements (CMR) reference

0173

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 if you wish to suggest changes to the content of this unit standard.