Title	**Make logs using a mechanised processing machine in a forest harvesting operation**		
Level	**4**	**Credits**	**18**

Purpose	This unit standard is intended for people employed in a mechanised log processing role in a forestry operation. People credited with this unit standard are able to: demonstrate knowledge of planning requirements for mechanised log processing, defects and features in logs which determine log suitability for particular grades, log cutting instructions for mechanised log processing, mechanised processing machines, and chain shot; and operate a processing machine to make logs.

Classification	Forestry > Forest Mechanised Harvesting

Available grade	Achieved

Prerequisites	One of – Unit 6935, *Operate an excavator based tracked machine in a forestry operation*; or Unit 24590, *Operate a self-levelling machine in a forestry operation*; or demonstrate equivalent knowledge and skills.

Guidance Information

1 Legislation relevant to this unit standard includes the Health and Safety at Work (HSW) Act 2015; the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018; and any subsequent amendments.

2 References
Approved Code of Practice (ACOP) for Safety and Health in Forestry Operations, December 2012, available from https://worksafe.govt.nz/.
New Zealand Forest Owners Association, *Forest Practice Guides* (2019), and any subsequent amendments, available from https://www.nzfoa.org.nz.

3 Before assessment against this unit standard candidates must have demonstrated competency with operation of the machine to be used in the assessment.
Competency is as defined in the Approved Code of Practice for Safety and Health in Forest Operations.

4 Definitions

Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.
Job prescription refers to any written instructions for the operation and may include maps, harvest plans or cutting plans.
Cutting instruction refers to a list of log grades to be cut showing priorities, lengths, diameters, defects not allowed, etc. This is used by the log maker to optimise log value recovered from a stem.
Worksite procedures refer to documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of planning requirements for mechanised log processing.

Performance criteria

1.1 Machine capability is described in accordance with manufacturer's recommendations.

Range stem diameter, stem weight, stem length, stem features.

1.2 Planning requirements for the processing area are explained in accordance with accepted industry practice and worksite procedures.

Range hazard identification and risk assessment, stable site, clear of other operations, room to manoeuvre, environmental management considerations, safety, signs, stockpiles for tree lengths and logs, waste management.

1.3 Job prescription requirements for log making are explained in accordance with accepted industry practice.

Range quality requirements, debris removal, environmental constraints.

Outcome 2

Demonstrate knowledge of defects and features in logs which determine log suitability for particular grades.

Performance criteria

2.1 Defects in logs are identified and described in accordance with accepted industry practice.

Range may include but is not limited to – splits, shatter, slab wood, stem damage, dead limbs, decay, rot, insect attack, knot collar, occluded scars, stem fractures, taper, nodal swelling, out of round, off centre pith, spike knots, sweep, wobble, kink, fluting, incorrect cutting, machine damage;
evidence of twenty logs is required.

2.2 Features relative to the log specifications are identified and described in accordance with accepted industry practice.

Range may include but is not limited to – pruned or un-pruned, internodal length, branch size, knot size, small and large end diameter, length.

2.3 Effects of features and defects in logs are explained in accordance with accepted industry practice.

Range effects on – quality, value, end use.

Outcome 3

Demonstrate knowledge of log cutting instructions for mechanised log processing.

Performance criteria

3.1 Action to be taken when cutting instructions change is explained in terms of worksite procedures.

3.2 Priority cuts are stated according to cutting instructions.

3.3 Preferred lengths for various cuts are stated in accordance with the cutting instructions.

3.4 Log marking requirements for the operation are stated according to cutting instructions.

Outcome 4

Demonstrate knowledge of mechanised processing machines.

Performance criteria

4.1 Components of the processing head are identified, and their function explained in accordance with accepted industry practice.

Range may include but is not limited to – delimb knives, measuring system, drive wheels, cutting unit, marker unit.

4.2 Safety features on the machine are identified and their function is explained in accordance with accepted industry practice and manufacturer's recommendations.

4.3 Safe operation and movement of the machine are explained in terms of manufacturer's recommendations and worksite procedures.

Range steering, travel speeds, slope, lifting capacity, reach, operator skill.

Outcome 5

Demonstrate knowledge of chain shot.

Performance criteria

5.1 Chain shot is defined, and common causes of chain shot are described in accordance with accepted industry practice.

5.2 Ways to minimise or control chain shot are described in accordance with the accepted industry practice.

Range maintenance, use, inspection of chains.

5.3 Precautions put in place to protect the operator and other personnel from chain shot are described in accordance with accepted industry practice.

5.4 Operator responsibilities to maintain the level of safety for themselves and others are described in accordance with worksite procedures.

Range distance, head orientation, maintenance.

Outcome 6

Operate a processing machine to make logs.

Performance criteria

6.1 The risks specific to operating a processing machine to make logs are assessed and controlled in accordance with accepted industry practice.

6.2 Risks, machine capability, and operator capability are continually assessed as work progresses in accordance with accepted industry practice. Changes to operations and/or risk controls are made to meet any situational changes.

6.3 Machine is positioned to facilitate efficient log making in accordance with worksite procedures.

6.4 Measuring equipment is calibrated in accordance with manufacturer's recommendations and worksite procedures.

Range may include but is not limited to – length measuring, diameter measuring, find end (electronic eye), density measurement.

6.5 Stems are visually assessed according to log specifications and cutting instructions.

6.6 Stems are positioned and supported and cutting equipment controlled, in accordance with manufacturer's recommendations.

6.7 Cutting options are determined, length and diameter combinations confirmed, and logs cut, in accordance with log specifications and cutting instructions.

6.8 Stems and logs outside capabilities of machine are identified and alternative processing organised in accordance with worksite procedures.

6.9 Stem damage and wood wastage are kept within job prescription requirements.

6.10 Processed logs are placed to meet the requirements of the operation in accordance with machine capabilities and worksite procedures.

6.11 Communication is maintained between worksite personnel in accordance with accepted industry practice.

Range audio, visual.

6.12 Quality requirements of log specifications, cutting instruction and value recovery are met.

6.13 Debris clearance is organised to meet worksite procedures.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 November 1996	31 December 2017
Revision	2	19 June 1998	31 December 2017
Review	3	5 December 2000	31 December 2017
Review	4	22 May 2008	31 December 2017
Revision	5	16 July 2010	31 December 2017
Review	6	19 March 2015	31 December 2017
Review	7	10 December 2015	N/A
Review	8	26 March 2020	N/A
Rollover	9	26 April 2024	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 Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.