

FIBRE RECOVERY LIMITED - a system for collecting, transporting and processing logging residue

INTRODUCTION

In 1994, a system for collecting transporting and processing logging residue was initiated by Fibre Recovery Limited, based in Mount Maunganui.

The system concentrates on collecting short sections (1 to 3.7m) of solid stem wood from skid site surrounds. These sections of wood are cut from extracted tree lengths during log making. Typically these pieces are pushed aside and left to rot.

The system for collecting the material varies according to location and whether the wood is presented for loading by the logging crew. Several components of the transport system can be seen in Figure 1. A detailed report on the transportation system has been published (Hall 1995).

The two trucks can work together as a pair, with the self-loading truck loading the other where necessary. The trucks also work separately with the excavator or other loader filling the bin only truck. The excavator's main role is to salvage, sort and stack wood from the skid surrounds for collection by the trucks. In some cases drop-off bins are left on a skid for the logging contractor to fill, these are collected by a "hook" truck.

The second part of the system is the processing of the collected material at a central site.



Figure 1 - Foreground, Cat 311 excavator, loading a bin truck from a pile of reject wood. The truck is a 6x4 with a three-axle trailer fitted with a self-loading crane. Obscured at the rear is an 8x4 bin only truck with a four axle trailer

PROCESSING SYSTEM

The wood is stockpiled in a yard at Mount Maunganui. The wood is then fed into a drum debarker before being chipped (Figure 2). The chips are screened to remove oversize chips and fines. The chips are then loaded into chip liners and taken to a chip stockpile at the Port of Tauranga, from where it is exported.

Equipment

Two Cat 928 rubber tyred front end loaders are used full time to handle the wood in the yard. A Cat 988, used for splitting oversize and unloading long pulp logs from conventional trucks, is shared with another operation. It also has a "slip on" bucket for handling bark and other by-products.

A Komatsu PC 200 excavator with a log shear is used to cut long pulp logs into short lengths, and a PW 60 sorts and stacks logs in the yard. A Cat 311 excavator with a log grapple loads the wood into the debarker.

PSI Mobile Drum Debarker

- drum diameter 2.75m
- drum length 9.15m, overall length 15.0m
- weight 43.5 tonne
- drum drive - hydraulic, via rubber tyres.
- independent power, 110 kW diesel engine
- mounted on tri-axle trailer

Morbark Model 30 Total Chiparvestor

- log infeed capacity 75 cm
- overall length 10.5m
- weight 33 tonnes
- power 500 kW
- tandem axle trailer
- crane for log infeed

Chip screen and conveyor

- removes oversize chips for re-chipping
- removes fines (undersize)
- conveyor takes chip from screen to chip liners



Figure 2 - Foreground, PSI drum debarker.
The Morbark chipper with crane can be seen at the rear

PRODUCTION

The drum debarker is rated at up to 50 tonnes per hour. The chipper is rated at up to 80 tonnes per hour. However, production from the chipper can vary substantially with the moisture content of the wood. Dry wood can result in production dropping by 30% with two or three times as many knife changes required.

Currently, the system works a 9.5 hour day for 5 to 5.5 days a week with a production target of 2000 tonnes a week. Maintenance of the equipment is done outside the 9.5 hour shift. 80% to 85% of the wood chipped is from the short or "bin" wood, collected from skid sites. The rest is made up of long pulp, reject sawlogs and oversize that is split at the yard.

Some wood is brought in by rail, direct to the yard, from Kinleith and Murupara.

There are by-products from the operation; bark which can be sold as garden bark or mulch, fines which can be sold as boiler fuel or to stables, slivers which can be sold as boiler fuel.

SUMMARY

There are substantial volumes of wood rejected at skid sites during log making. It can be as much as 3% to 4% of the daily extracted volume (Hall, 1994). The system described here is capable of recovering over half of this, the pieces that are greater than one metre and less than 3.7 metres in length.

Conventional log transport and processing systems cannot handle this material.

Systems for collecting, transporting and chipping short sections of stem wood such as this could be used in other areas of New Zealand to increase the volume of wood harvested.

REFERENCES

Hall, P. (1995) : "Collection and Transportation of Logging Residues". LIRO Report Vol. 20 No. 16.

Hall, P. (1994) : "Waste Wood at Logging Landings". Vol. 19 No. 15.

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