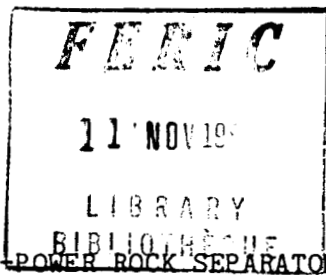




September 1987

FIELD NOTE NO.: General--4

Previous Sheet Reference Nos.: None



SUBJECT: HYDRO-POWER ROCK SEPARATOR

Wood Waste Recovery Inc. of Albany, Oregon has built a portable system for cleaning up logyard waste. The system produces clean, woody material which can be processed into hogged fuel or beauty bark and rock which can be recycled. A system demonstration was held in Scott Paper's Riverside logyard in Everett, Washington during the last two weeks of August 1987, and this Field Note describes the system.

The system consists of two parts.

1. Main Separating Plant

The main separating plant is mounted on a highboy trailer. Sortyard debris is fed into a 6.1 m³ hopper with a Caterpillar 950-sized front-end loader. An inclined, chain conveyor moves the debris from the hopper to a rotary drum screen (2.1 m in diameter and 9.8 m long). The screen is divided into three sections. The first section screens out material less than 1.9 cm in size, the second section screens material from 1.9 cm to 10.2 cm, and the third section screens material from 10.2 cm to 30.5 cm. Material greater than 30.5 cm exits the end of the drum screen and falls onto the ground. Each of the three sections of the drum screen have takeaway conveyors. The material less than 1.9 cm is conveyed away from the screen by a 0.9 m wide by 6 m long, rubber-belt conveyor and deposited in a pile. The small rock and wood and large rock and wood are transferred to the separating tank by separate 0.9 m wide by 6 m long, rubber-belt conveyors.

The trailer that carries the main separating plant also contains the diesel engine (100 kW), the variable displacement hydraulic pumps, and the control panel. Everything in this system is hydraulically powered.

2. Separating Tank

The tank is split in half to process the small wood and rock and large wood and rock fractions separately. The separating tank is mounted on a highboy trailer.

Material from the main separating plant drops into the water of the separating tank. Rock falls to the bottom where it is reclaimed by 0.9 m wide, inclined chain conveyor. A submerged steel plate across the width of the tank prevents any rock carrying over into the section of the tank where the woody material is recovered. Woody material is drawn and pushed across the separating tank by two paddle-wheel-type impellers churning on the surface of the tank.

Their motion sets up a current of water in the tank which runs in a clockwise direction and forces the woody material towards the inclined reclaim conveyors. Two 0.9 m wide chain conveyors, one for the 1.9-cm to 10.2-cm material and one for the 10.2-cm to 30.5-cm material, remove the woody material from the tank and drop it on separate belt conveyors for piling. Two 0.9 m wide, rubber-belt conveyors are also used to pile the two rock fractions that have been separated in the tank.

As a result of the demonstration, the manufacturers of the system recognize that modifications will have to be made to the infeed hopper and conveyor to reduce bridging, to increase flow, and to allow larger pieces of material to enter the rotary-driven screen. Also, some location modifications will have to be made on the conveyors feeding the separating tank to reduce the amount of woody material being separated with the rock.

The cost of the unit is estimated at \$185 000 (U.S.). This price does not include the four belt conveyors used to pile the material from the separating tank. A system operator, a groundman, and a front-end loader operator were needed to run the system during the demonstration. However, once in production operation, the system probably could run with two operators. During the demonstration, the system was processing about 610 m³ of waste per 8-hour shift.

INFORMATION: The information contained in this report is based on limited field observation and is only published to disseminate information to FERIC member companies. More information may be obtained from:

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A short video has been prepared on the system and is available to FERIC member companies for \$15.00. Please write to Jennifer Breadon at FERIC and enclose a cheque for the correct amount.

Alex Sinclair

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