

Case Histories

Woodyard Management: Measuring Log Throughput

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Measurement of the process is the driving force for successful management of any production operation. In a mill woodyard, the measurement of wood flow tells the whole story of the operation. Whether the measurement is in cords, cunits, tons, or cubic meters, once the wood gets beyond the scalehouse, keeping track of how much went to storage or to the mill infeeds is a difficult task. Add the complications of multiple species, lengths, and infeeds, and the task gets even more challenging.

Cab of a P&H Log Handling CraneLog handling cranes have added some degree of control and measurement by allowing a single

operator to track where loads come from and where they go, usually with manual counting of loads. Many times in a high volume woodyard, with pressure on the operator to move loads, tracking of the loads can easily be overlooked. Then it is back to the old ways of making storage pile estimates and evaluating the scalehouse receipts.

Log cranes have long been equipped with devices that prevent overloads using simple load cell technology, and some even provide digital weight readout in the cab. These devices are economical to purchase, but are not accurate enough to be used for inventory measurement and management. Highly accurate crane mounted weigh systems have also been available, but cost prohibitive until now.

Through the efforts of Morris Material Handling, the manufacturer of P&H cranes, an affordable and accurate inventory management weighing system has been developed, installed and fully tested in the woodyard environment. It now allows woodyard management to track the total tons of wood handled with multiple sorts and an accurate breakdown of loads to and from the storage areas as well as loads to the infeeds. This data is critical to managing any woodyard operation.

The system uses a special grapple pin with an encapsulated load cell that accurately measures the weight of the logs in the grapple. The load signal is carried to the cab through two (2) standard #12 wires in the grapple power cable, and is not susceptible to interference from the grapple power or control wires. This feature has made the system viable in the rough and tough woodyard environment.

Once the signal is received in the cab, a 9 monitor allows the operator to see the load in tons on the screen and then simply select a button that will indicate where that particular load is coming from and going to. The system shown here keeps track of four sorts: hardwood and pine, 16 ft. and tree length. The operator chooses a color coded button to indicate: truck to storage, truck to infeed, or storage to infeed. Loads that are rehandled are not recorded.

At the start of each shift, the operator uses the touch screen to sign in by name, identify the shift, and begin tracking the load movements. A PLC keeps track of the data and interfaces with the operator. At the end of the shift, the operator simply indicates that the shift is complete and requests a printout of the shift activity, then the system is ready to begin another shift. Shift reports are then turned in by the operator for management use. And yes, if the printer runs out of paper,

the system retains data for several days to be certain that it is not lost.

This new log inventory management system is available for both new cranes and for retrofit onto existing log cranes. Accuracy is specified at 2% but when site calibrated, a repeatable accuracy of approximately 0.2% was recorded by one user. The number of wood types can range from one to ten, with 3 or 4 sorts for each type.

There is also an option to transmit this data off-board the crane by Ethernet radio modem to the mill computer for direct data handling at the end of each shift.

This proven system provides one more reliable tool for the woodyard manager to use to improve efficiency and reduce costs through accurate measurement of the log inventory.