



MANAGING CHIP PILE INVENTORIES

Woodyards: measurement

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INTRODUCTION: Managing stockpile inventories is an essential function of mining, construction, forestry, transportation, natural resources, and other industries. In today's global business environment, a direct line can be drawn between inventory values and cash flow, production schedules, storage and transportation costs, turnaround times, and audit scores. Mistakes in measuring inventory can significantly lower profit margins and even affect a company's reputation.



Fig. 1: LTI's TruPulse 360 laser running MapSmart + Volume

Traditionally, a survey crew takes physical measurements, manually, of irregularly shaped stockpiles of animal feed, wood chips, aggregate, sand, or rock—an inexact science that can be time consuming and vulnerable to inaccuracies—or management may arrange for aerial flyovers—a costly, weather-dependent solution that doesn't provide results for 10 days or longer.

Ponderay Newsprint Company, located in Usk, Washington, produces 244,000 metric tons of newsprint annually and relies on a just-in-time inventory model that corresponds to wood chip piles located in high-congestion zones with turnover rates of only two to three days. Historically, Wood Supply Manager Chris Childers had relied on a labor-intensive manual process to calculate volumes. Pacing the base for length and diameter and relying on average known estimates or past data to calculate volumetric tons led to frequent guesswork and complications with accuracy and repeatability. Faced with an inability to meet consistency standards, Childers needed to find a simple and cost-effective way to measure inventory, and he turned to Jackson Beighle, GPS/GIS Specialist with Electronic Data Solutions in Missoula Montana, for a solution. Beighle recommended Laser Technology's (LTI) TruPulse® 360 and MapSmart® + Volume, a mobile laser rangefinder and field data collection software with a reputation for ease, versatility, and accuracy.

GENERAL FEATURES: The TruPulse® 360 and MapSmart® + Volume were specifically designed for the non-surveyor. The methodology for surveying wood chip piles involves:

- 1) Pacing the pile, temporarily marking instrument points that afford full coverage of the surface.
- 2) Choosing a starting point, setting up, and configuring the TruPulse® laser with the MapSmart® software.

- 3) Aiming and shooting the base or toe points of the pile, as well as irregularities along the side of the pile from the starting location.
- 4) After collecting the last data point on the pile, aiming and shooting to the next instrument location and then occupying that point.
- 5) Continuing shooting the pile from each new location until the entire surface has been measured.
- 6) Transferring field data to PC for processing (or performing volume calculations right in the field).



Fig. 2: Measurement of the wood chip inventory is straightforward and user-friendly.

The TruPulse® 360 system is waterproof and easy to use, set up, and maintain. The TruPulse® has proprietary, TruVector Compass Technology® that provides the best possible compass accuracy regardless of the laser's inclination. The TruPulse® 360 continually monitors the integrity of the compass calibration and alerts the user if a re-calibration is required. Its laser measurement range is from zero to 3,280 feet, with a distance accuracy of plus-or-minus 1 foot, inclination accuracy of plus-or-minus 0.25 degrees, and azimuth accuracy of plus-or-minus 1 degree. The MapSmart® + Volume software collects and makes in-field distance, area, closure, volume, and weight calculations that can be viewed right on the data collector and as a printed report, text report, spreadsheet, CAD file, or contour map; or as raw data.

When reconciling received volumes and monthly consumption with month-end physical inventory, there has been a minimal differentiation of 2% to 3%. Even when the piles were misshapen, the measured and calculated volumes has been well within 10% of the book volume.

SUMMARY: Performing physical inventories of material stockpiles is something many companies see as a necessary evil. It must be done for accounting purposes, as inventories can be worth tens of thousands of dollars, but it eats up valuable resources and can slow down production. Having confidence in a physical inventory measurement system is a fundamental component of operations at Ponderay Newsprint.

COSTS: To discuss your individual needs and get an estimate of costs, please contact Paul Adkins or Jackson Beighle.

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