TIMBERLINE

April 2012 • Volume 18, Number 04 **INDUSTRY NEWS & MACHINERY** www.timberlinemag.com • **800-805-0263**

Laser Technology Inc. Rangefinder, Software Improves Log Inventory Control

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Measuring log deck volumes is much faster and easier with the TP360 laser rangefinder.

John Calkins knew there had to be a better way to measure log decks at a sawmill. He discovered what it was when he partnered with Laser Technology Inc.

As a log scaler for Simpson Lumber Co., his duties included measuring decks at the company's sawmill in Shelton, Washington.

Of course, different methods and tools have been developed over time so a sawmill can measure incoming raw material as well as outgoing product.

"Logs are our largest cost and accurate inventory of raw material is a key business metric," noted John. That information, knowing precisely how many board feet are contained in the inventory of logs as well as the board feet of lumber out the door, also can be used to monitor yield and maximize sawmill operations.

Sawmills can know the volume of a log deck if it is a 'closed' log deck, a practice most mills typically follow. A closed deck is one that has been assembled with every log scaled and the scale receipts tracked tabulated; the mill scales and tracks every log that goes into the deck. "When we build

Sawmills find themselves needing to calculate inventory volumes of literally mountains of logs.

our log decks, we know the volume going into them," said John.

The need for measuring becomes critical as logs are removed from a deck and processed by the mill; the decks must be measured in order to calculate the remaining volume.

Until now the methods have not provided the accuracy desired. Every sawmill has a forester or log yard manager who is responsible for keeping track of inventory. Most of them have to pace the length of a log deck and measure it with a tape measure or have a two-man crew, with one man stretching the tape measure and the other reading the measurement. The height of the deck is similarly measured using a device known as a prism pole, which requires one man to adjust the pole and another standing away from the deck to indicate the appropriate height or the top of the deck.

John Calkins, a log scaler for Simpson Lumber Co. with over 35 years of experience, set out on a four-pronged mission to come up with a new method to measure log decks. He settled on a Laser Technology TruPulse 360 laser rangefinder.

"Some try to use other tools," said John. "Some drive around in a pickup and guess. They don't last long," he added with a laugh.

John, 57, who earned a forestry degree in applied science from Green River Community College, was a bureau log scaler for 30 years. He has been employed the past five years as a check scaler and log quality specialist for Simpson, responsible for log and chip quality for the company's northwest lumber division.

He set out on a four-pronged mission, to come up with a new method that would:

1. Improve physical log deck measuring for more accurate log accounting.

2. Allow one person to take more measurements.

3. Develop a procedure that would be easy to understand and replicate.

4. Devise a procedure that would be acceptable to accountants and auditors.

He settled on a tool – a device – that revolutionized his approach to measuring log decks: the Laser Technology TruPulse 360 laser rangefinder.

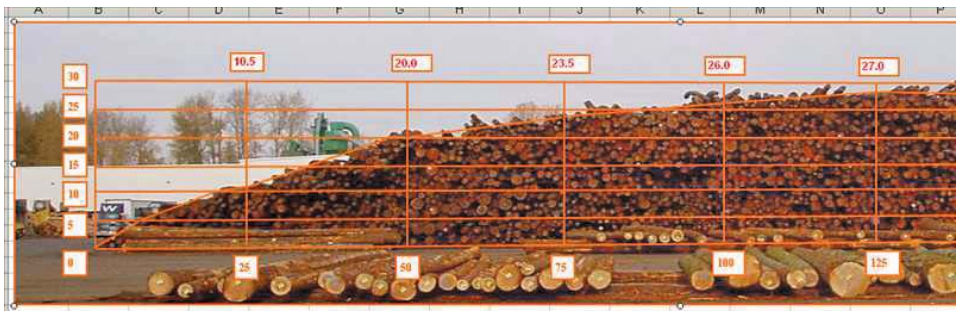
"You measure with the laser rangefinder right to the deck…It's straight forward, easy to understand."

"This is a great device for measuring this," he added.

The technology provides a number of benefits. The most important benefit, to companies like Simpson, according to John, is improved safety. "Safety first," he said. "It is the most important thing."

Using a hand-held laser to take measurements virtually eliminates all the hazards associated with walking around log decks. In addition, because of water and other obstacles, in some cases it is physically impossible to make measurements using the manual methods, resulting in foresters and log yard managers having to rely on an estimate or "educated guess."

"That's where this device makes it completely possible," said John. "You just could not do it."



Clinometer deck measurements allow one person to do the job that used to take multiple people much more time to measure log volumes.

"I can stay in one position without moving my feet and measure a deck 300 feet long."

In addition, measuring log decks no longer is a task that may involve several people. It can be done by one employee. "This has really made it extremely easy for one person," said John.

Typically a crew of two people would start by sweeping the pavement of the log deck, then using a measuring device that utilizes a small wheel, rolling it along the length of a given deck in order to measure it. The process would take the two employees all afternoon.

"You don't need any of that," said John, who now measures all the pertinent log decks at five sawmills – by himself – in a week's time.

Another important benefit is improved accuracy. "It's really quite incredible compared to the way that we used to do it," said John, referring to the improved accuracy. The methods of manually measuring log decks had a margin of error 10 percent at best, he suggested. The LTI technology doubled the accuracy to 5 percent or even better, he said. With more 'shots' with the hand-held laser, accuracy is even greater and approaches the accuracy of individually scaling a log, John argued.

Where in the past log deck volumes were determined on a monthly basis, and the figures could be used only on a quarterly or even annual basis, the technology allows log deck volumes to be measured weekly and adjustments can be made monthly. "They figure weekly (lumber) sales, so they want to be able to figure their supply on a weekly basis," noted John.

"We don't need to over-supply our mills with costly raw material," added John. In the past, because of uncertainty over inventory, sawmill mangers would be prone to make sure they had plenty of logs on hand. "This allows you to get just a little closer to reality," said John, by keeping track of inventory more accurately.

The technology would benefit virtu-

LTI a True Pioneer in Laser Technology

From missions in outer space to golfing and hunting, Laser Technology Inc. (LTI) can claim to be a true pioneer in designing and manufacturing lasers for what's technically known as reflectorless measurement.

The company's hand-held laser rangefinders find many applications in the forest products and other industries. In addition, it has developed computer software tools specifically to be used with its devices for forest products industry applications.

For example, mills can readily ascertain the volume of a chip pile with the aid of an LTI laser rangefinder in conjunction with the company's MapSmart and Volumetrics software. The technology makes the task quick, safe, and accurate.

The latest addition to the company's portfolio of products for the forest products industry is its Log Deck Volume software. It is a cost-effective, easy solution to instantly calculate deck area as well as the board feet volume for specified log species and diameters.

Users can quickly get accurate, repeatable results simply by following the step-by-step instructions built into the software and using the helpful illustrations that guide them through the process. It offers five different survey methods that can be adapted to the specific environment of any log deck. These features also address the difficulty of working with uneven ground.

"We developed the Log Deck Volume software because it can streamline the inventory process and even make it safer for our customers," said Steve Colburn, Laser Technology's national sales director. "The results from our lasers and the software calculations are repeatable and will save a lot of time."

The new Log Deck Volume software, which is compatible with Juniper Systems Allegro, Archer, BAP and other hand-held data collectors and computing devices, integrates with LTI's Impulse/MapStar System and TruPulse laser rangefinders to collect the measurements.

LTI lasers are able to acquire measurements to any non-reflective surface, which eliminates the need to occupy the pile or even having to stand near it when making measurements. Users can now save time, reduce safety liabilities, and increase productivity because it only requires one person.

LTI, based in Centennial, Colorado, and celebrating its 25th year of business, has been awarded 63 laser and compass-based patents worldwide. The company is responsible for developing the first recreational rangefinder and the first reflectorless hand-held total station.

LTI began working with the US government over 24 years ago by designing lasers that measured distances between two planes in-flight for a de-icing exercise. The company subsequently won a contract with NASA to build a custom laser that could measure both distances and speeds for space docking missions. Later it partnered with Bushnell Optics and designed the first low-cost recreational rangefinder for golfing and hunting.

LTI's line of TruPulse laser rangefinders can be used with a compatible data collector with either a standard serial port or Bluetooth. Each 'shot' with the rangefinder automatically downloads a full data string that comprises horizontal, slope and vertical distance, the degree of inclination, and azimuth values.

They feature superior optics with 7X magnification and in-scope data display for capturing the right measurement to the correct target. Toggling on the 'Closest' or 'Farthest' mode ensures the laser sensor ignores unwanted obstructions in front or behind the desired target.

Small enough to fit in a pocket and economically priced, the LTI TruPulse laser rangefinders display all measurements and menus right in the scope, and they integrate with GPS and popular GIS software.

The LTI TruPulse 360 features on-board height and missing line solutions. The user can instantly measure slope distance, inclination and azimuth and calculate horizontal and vertical distance – all with a single push of a button.

It has an integrated compass that allows the user to measure azimuth and provides an extra on-board solution called missing line. This is a simple two-shot routine that instantly calculates the distance, inclination and azimuth direction value between any two remote points.

Rugged and waterproof, the LTI TruPulse 360 also features an on-board solution that only requires three shots to calculate a height or clearance value of any target. Since the last two shots are only measuring the inclination values to the top and base, you never need a clear line of sight to your target.

For more information, see the company's website at www.lasertech.com or call toll-free (877) 696-2584 or (303) 649-1000.

ally every forester or log yard manager responsible for measuring log decks. "Every one of them would recognize the value in this," remarked John.

John – and Laser Technology – went a step further. As significant as the benefits were of taking measurements with the company's TruPulse 360, John didn't stop there. He hooked it up to a hand-held computer and figured out the math that was needed to make the calculations - to convert the length and width measurements of the deck along with data about log species, length and diameter into an accurate assessment of volume in board feet.

He wanted to go a step further, though. "My goal was instead of collecting all the field data and cobbling it on an Excel spreadsheet and taking it back to the office, I wanted to be able to have the answer in my hand before I walked away so I knew I didn't make any errors."

He went on an e-mail campaign, writing to manufacturers of hand-held electronic tools and computers and software companies and asking for their assistance in developing a suitable computer program.

"LTI came back and said, 'How can we help you?' "

The Colorado-based laser designer and manufacturer offers laser technology for professional measurement, traffic safety, recreational products, and industrial sensors, and its products are used for other applications in forest products, mining, and other industries. The company also provides software tools for use with its laser rangefinder products, and it developed a new program – its Log Deck Volume software – to calculate the board feet volume in a log deck.

"They heard me loud and clear," said John. "They stepped up to the plate and hit a home run with this."

John takes measurements with the aid of the Laser Technology TruPulse 360 rangefinder. The data is entered automatically into the Log Deck program, which is on a hand-held computer – in John's case, a Juniper Systems Allegro. He connects the devices with Bluetooth wireless technology although they also may be connected via a cable. The program can calculate the square footage of the log deck as well as – by inputting factors related to a given log deck – board foot volume. The files also may be exported to his desktop computer back at his office.

"What's really complicated," said John, is calculating the volumes of decks that are not closed. In that case, the person measuring the decks would have to perform "due diligence" – to build test decks in order to determine the various factors involved in measuring certain type of decks.

Fortunately for users of the Laser Technology software, that's already been done. "That's what the programmer has built into the software," noted John, "the ability to enter in your own factors."

John compared the Laser Technology TruPulse 360 to the i-Phone. "You've got to love this device," he said. "If you give it to somebody, they're going to think of whole new ways to use the technology, just as individuals and software companies have developed new applications that can be added to an i-Phone's capability."

Prism poles are one of the measuring devices that have been used in the past for measuring log volumes.