



Millwide

INSIDER

THE MAGAZINE FROM USNR | ISSUE 3 - 2012

DRIVING PROFIT

*Griffin Lumber is improving recovery
with PGLR log rotation correction*

INVESTMENTS SET TO PAY OFF

*HHP, Inc. is set to expand its markets with recent
investments to its primary optimization*

MOBILE MACHINE CONTROL: NEW FRONTIERS

USNR is bringing mobile machine control to a mill near you

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SUBSCRIPTIONS

Tel.: 250.833.3028

subscriptions@usnr.com

EDITOR

Colleen Schonheiter

colleen.schonheiter@usnr.com

CONTRIBUTING EDITOR

Sonia Perrine

sonia.perrine@usnr.com

Supporting your investments

As one of the customers highlighted in this issue pointed out, USNR has proven staying power through the up and down cycles this industry is so prone to experience. It's not just the ability to stay afloat that makes USNR a good bet. USNR continues to make its own investments in the infrastructure required to support its customers no matter where they are in the world. USNR's products are second-to-none because of its ongoing investments in R&D, and in hiring the right people. When you are choosing a supplier for your next investment, you know USNR will be there to support your investments for the long term.

3 When Griffin Lumber recently invested in major processing changes at its primary end, it selected USNR for the optimization component because of its expertise. Griffin recognized that accurate optimization is the key to achieving the utmost in recovery from every log, and USNR's primary optimization is supporting that goal.

8 A hardwood producer, HHP, Inc. has also been investing in newer technology for its operation. When HHP decided it was time to invest in its primary end, an upgrade to the existing USNR optimization system was the answer to improving recovery and supportability. Satisfied with the upgrade path USNR had provided, HHP knew USNR would be there to support its future endeavors.

12 USNR has taken machine control to a whole new level with the application of mobile computing technology for the wood processing industry. With the first project completed – mobile control for a sorting system – USNR is busy taking requests to expand this capability.

14 With over 2,000 sorting systems installed, USNR clearly leads the pack with designs, features and options to support your sorting goals.

Sincerely,
Colleen Schonheiter
Editor

USNR PARTS & SERVICE

7/24 Service: 800.BUY.USNR

Tel.: 360.225.8267

Fax: 360.225.7146

Mon. - Fri. 5:00 am - 5:00 pm PT

www.usnr.com

USNR LOCATIONS

Woodland, WA

Headquarters

360.225.8267

Parksville, BC

250.954.1566

Eugene, OR

541.485.7127

Plessisville, QC

819.362.8768

Jacksonville, FL

904.354.2301

Salmon Arm, BC

250.832.7116

Painesville, OH

440.352.9381

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Addresses to: USNR c/o Colleen Schonheiter, 3550

- 45th Street Southeast,

Salmon Arm, BC V1E 4N2



Griffin Lumber Setting sights on recovery

PGLR ROTATION CORRECTION SYSTEM MAKES EVERY TURN COUNT

There comes a time at many manufacturing operations when you know you've gotten as much value out of your equipment as you are likely to get. Even though you've made many process improvements with your existing system, you know you are losing opportunity. This was the driving force that led Griffin Lumber to decide that a major capital upgrade to the primary breakdown line was the next step forward.

Griffin Lumber Company (GLC) at Cordele, Georgia is a family-owned operation, run by Billy Griffin and three sons, Will, Jeremy and Jesse. His fourth son, CJ, runs their local retail outlet, Cordele Sash. The Griffin mill processes Southern Yellow Pine logs from 5-24" diameters and 8-16' long. Finished lumber ranges from 1x4 to 2x12, but the vast majority of the mill's production goes to 5/4 x 4" and 5/4 x 6" decking.

The Griffin operation had two older C-frame carriage lines that they wanted to replace with an optimized sharp chain configuration. The mill had updated to a LASAR scanning system with MillExpert optimization on one of its carriage lines a few years ago, but now determined they needed higher throughput and recovery than what the carriage lines could give them. Jesse Griffin

explained their reasoning. "We had gotten to a point where we had done about all we could do in the mill, from a production and quality standpoint. We knew if we wanted to take the next step forward we were going to have to do something big, there weren't any small fixes."

They sourced a used USNR DLI line that they thought would do the job after some major modifications, and a used quad bandmill with reducer heads. Then they contracted Doug Tinsley of The Tinsley Group to engineer the design changes, and had the machines cut down to the size and configuration they deemed would fit their needs. USNR was selected to supply the optimization components comprising log rotation, Precision Geometric Log Rotation (PGLR), log optimization and System Quality Inspection (SQI), with Smart TriCam™ sensors for scanning. The optimization platform chosen was MillExpert, and this was already familiar to mill personnel.

Configuration overview

The mill has two debarkers and manual bucking lines that feed two infeeds. The operator can feed logs on to the autorotation vee-flight chain from either infeed. The log is first scanned with Smart TriCam

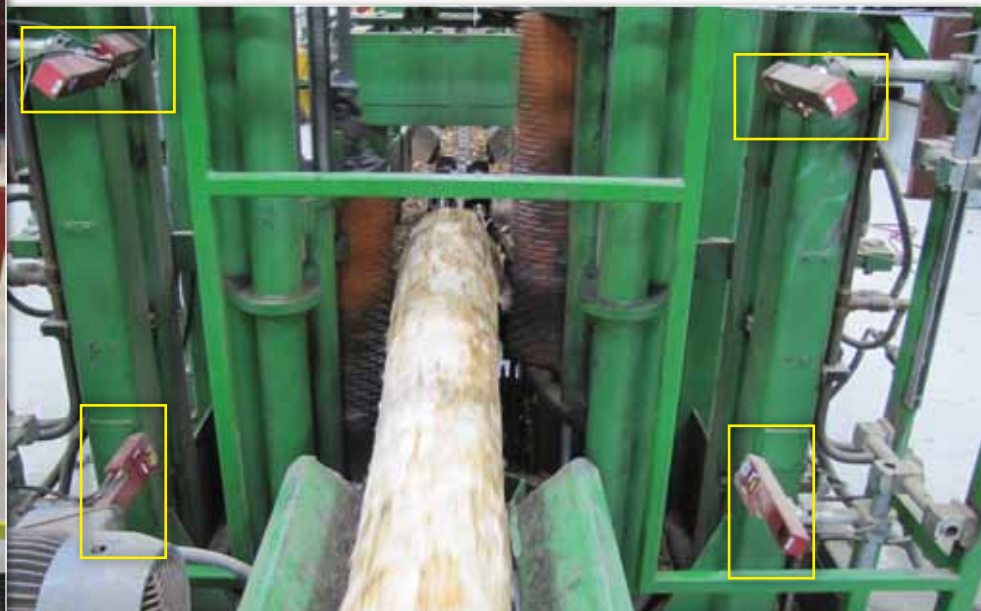
The Griffin team understands the importance turn accuracy makes to recovery. They chose USNR's PGLR system to ensure they get the best turn on every log.



With PGLR, 4 Smart TriCam™ sensors scan the log as it is being turned.



The log is first scanned in a dual zone orientation, for log rotation optimization.



Next, the log is scanned by 4 Smart TriCam sensors as it travels through the turners. The PGLR provides continuous feedback about the orientation of the log to correct rotation and achieve the target turn angle.

sensors in a dual zone orientation, and the scanned image is sent to the MillExpert log rotation optimizer. The optimizer analyzes the image for sweep, and if the log exceeds a certain sweep threshold it is turned horns down. If the log is within the sweep threshold it is turned for best value.

Then the log passes through the PGLR sensors and is scanned as it travels through the turners. The PGLR provides continuous feedback to the PLC about the orientation of the log to correct the log's rotation on-the-fly and achieve the target turn angle.

After it has passed through the turners the log travels on a short flighted chain with centering rolls. The log is impaled on a very unique rising sharp chain. This setup is extremely efficient as the log does not need to be thumped onto the chain.

The log travels through two more scan zones and the scanned image is sent to the MillExpert canter optimizer to generate the best value solution. The log optimizer has a turn detect component that analyzes the actual orientation of the log and provides feedback regarding the accuracy of the turn.

The log travels through a side chipper\quad bandmill arrangement where opening faces are revealed, and sideboards are sawn off and sent to an outfeed that feeds the edger.

The cant remains on the sharp chain and is scanned by a single zone Smart TriCam scanner, and the cant image is sent to the System Quality Inspector (SQI) which provides QC analysis information for the mill. The cant exits the sharp chain onto an outfeed deck that feeds the gang.

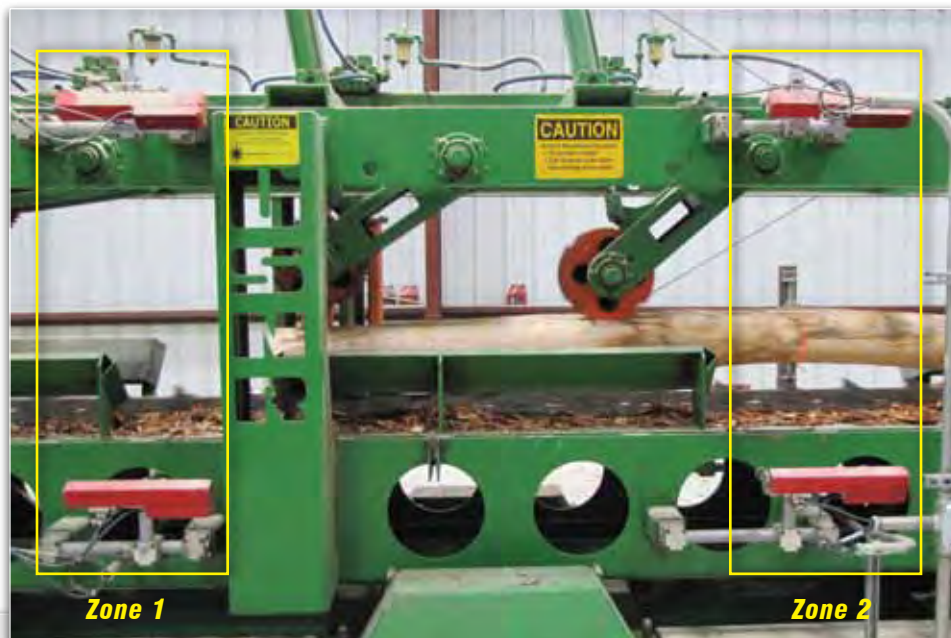
Optimizing the line

In choosing a vendor for the optimization system, Jesse said they chose USNR for several reasons. "We know USNR can optimize a log better than anyone out there, and start-ups have always gone flawlessly. The project managers are always prepared and extremely helpful."

The MillExpert system uses proprietary Surface Feature Recognition automated log classification. With a vast number of primary breakdown installations, it consistently and reliably ensures control over the breakdown process, yielding the highest value solutions based on characteristics such as knots, taper, flare, kink and sweep.

The GLC team was clear about the significance of accurate log rotation, particularly on logs that need to be turned horns down for sweep. Because of the rising sharp chain arrangement they realized the importance of having two points of contact on the sharp chain on logs with lots of sweep. This could only be guaranteed with a PGLR system that would ensure the log was being rotated correctly.

Jesse related that with the carriages they had prior, the log rotation had been essentially a manual process, and he knew an optimized log turning system would do a better job for recovery. "When you are talking about



The log travels through two more scan zones and the scanned image is sent to the MillExpert canter optimizer to generate the best value solution.

"We've seen enormous uplift in productivity and yield. We are very satisfied."

measurements in degrees, I don't think any machine without auto correction (PGLR) can get that log turned right." He said that consultants he spoke with and mill owners who used auto correction for log turning all recommended that accurate log orientation is essential to realizing the greatest value recovery.

Log rotation, correction

The PGLR scanning system is located at the log turner machine section. The PGLR system monitors and corrects the log rotation process in real time to increase recovery by reducing log rotation error. Four SmartTriCam 3D sensors scan the log as it is being rotated. The actual log rotation path is compared to the autorotation optimizer's projected log rotation path to generate log rotation corrections. The log rotation corrections are transmitted to the PLC for correction of the log rotation path on-the-fly as it continues through the log turner. Log rotation error is typically reduced by 50% or more. PGLR can be installed with a new MillExpert optimized primary breakdown system, or as an addition to an existing system.

The PGLR software is straightforward with a host of diagnostic tools to help tune the mechanical as well as the PLC control systems. Graphs and on-screen indicators permit early detection of problems and overall performance at a glance. Reports are generated to isolate issues relating to a particular class of log and to track longer term trends. PGLR can compensate for log turning errors due to the following reasons.

- ▶ Mechanical wear
- ▶ Feed speed changes during the turn
- ▶ Irregularly shaped and crooked logs
- ▶ Transfers from one conveyor to next
- ▶ Interaction with pressrolls
- ▶ Slippage and hesitations

"It is a real testament to the whole system when you can scan a log, rotate it, impale it on the sharp chain, send it through the chip heads and saws, and the log only moves 3 degrees. That really shocked me when the results started coming in."

Data analysis: Why did it do that?

For real-time process monitoring and trending USNR offers the turn detector and System Quality Inspector (SQI). The turn detector and SQI play similar roles; the turn detector verifies the actual rotation while the SQI verifies the actual result of the breakdown solution. The turn detector and SQI allow for faster initial system tuning, feedback on overall system performance, and are long-term tools to predict maintenance requirements. Depending on the application and configuration of the system, the Turn Detector and SQI software can often use data from existing scanning systems so additional scanners aren't always required. The turn detector compares images of the log before and after the turner to measure the actual turn error on every log. The turn detector is a component of and included with the autorotation optimizer.

The SQI is an optional system that provides trending reports comparing the predicted and actual positioning and cutting of the log. SQI receives the optimized log image and solution from the optimizer, as well as log scan data from just upstream of the chippers, or cant scan data from the cant outfeed. The SQI program compares the predicted data to the actual log or

"We only lost 0.375% of the volume from the initial scan to the final solution scanner. I don't think anyone can argue against those kinds of numbers."



Would you take this turn with your eyes closed?

Probably not, since you'd most likely wreck. But is sawmilling so different?

Running your log line without PGLR can be like driving blind. Precision Geometric Log Rotation (PGLR) is a solution to the often

hidden problem of log rotation turn accuracy. PGLR improves cutting accuracy and boosts recovery. Look into it today.

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The Griffin operation places much emphasis on the technological means to achieve process improvements. The mill's QC group utilizes the available tools to analyze quality in the mill's processes and products. Jesse Griffin expressed, "Something that really appealed to us was the SQL system. It measures all the cants you cut, and provides you invaluable information about how your

Griffin's SQL system uses 2 Smart TriCam sensors mounted in the log line after the bandmills to scan the cant. Some mills choose to use their spare sensors for this application. The SQL system at Griffin reports on the following measurements.

This is done on chip\chip face sets and saw\saw sets.

This is also being done on chip\chip face sets as well as saw\saw sets. The mill can utilize this tool to analyze saw and chipper calibration. For example, if a saw set is predicted to be at +2" from the machine centerline and the sawn face is scanned at +2.02", it follows that the saw calibration may be out by 0.02".

For example, if the 6" cant width target is 5.875" and the cant width is scanned at 6", a 0.125" error is reported in SQL. This can also be used to adjust saws and chippers.

The final performance test numbers tell the story. Jesse explained, “We ran 20 logs, and 19 out of 20 were off 3.19 degrees and 18 out of 20 were off 2.84 degrees. We also only lost 0.375% of the volume from the initial scan to the final solution scanner. I don’t think anyone can argue against those kinds of numbers.”

Jesse went on, "As far as me personally, it has exceeded my expectations. It is a real testament to the whole system when you can scan a log, rotate it, impale it on the sharp chain, send it through the chip heads and saws, and the log only moves 3 degrees. That is virtually not moving, and it really shocked me when the results started coming in."

The primary breakdown redesign was part of a larger retrofit to Griffin Lumber, that saw many suppliers and teams working together to reconfigure the process. Jesse says, "We didn't just put in the sharp chain, we rebuilt the whole sawmill. Everybody got together and made the project work for us, and we were able to start-up on time." Jesse is very happy with the results. "We've seen enormous uplift in productivity and yield. We are very satisfied." He went on, "Sometimes you don't realize how bad you really were suffering until you take a big step like this."

Jesse gives credit to the teams and individuals that made it all work. “Derek Daudrich (USNR project manager) was a really pleasure to work with. He was extremely knowledgeable, prepared, and was just a big help throughout the project. Brian Walts (USNR PGLR specialist) worked directly with the PGLR until he felt comfortable in passing the tests, which it did so remarkably well.” The controls work was done by a local contractor, and Jesse attributes much of the project’s success to how well the various teams worked together.

He went on, "Everyone at GLC really pitched in during this project, and we could not have done it



SQI POSITIONING OPTIONS

SQI could be added as an upgrade to existing primary breakdown systems that utilize MillExpert optimization. Following are various SQI configurations depending on what is being measured.

- SQI scanners positioned ahead of the chippers measures the actual position of the log going into the chippers, and reports any errors in infeed positioning. SQI provides measurement only, not optimization. It is used for monitoring the accuracy of the infeed positioning rolls.
- SQI scanners positioned immediately downstream from the chipper heads, measures the opening faces of the cant. SQI monitors the distance between the chipped faces. If the mill has made changes and the chippers are out of adjustment, the SQI can detect it. SQI can also detect any positioning errors between the infeed and the chip heads. If they are not in agreement, then the opening faces will reflect the results.
- SQI scanners positioned downstream to measure the opening faces of the cant after the sideboards drop off. The SQI measures the opening faces on the cant, verifies that the cant is on size and analyses the predicted vs. actual opening faces to identify any consistent offset error in the machine.



Griffin's SQI system uses 2 Smart TriCam sensors mounted in the log line after the bandmills to scan the cant. Some mills choose to use their spare sensors for this application.

PGLR drives profit with turn accuracy.

without our guys here. They all really stepped up and helped us finish this project on time. Some of those who worked closely on the PGLR were Tommy Purser, Brian Rucker, Bura Allen, Robert Lavender, Ricky Deloach, Phillip Pritchett and Ricky Rhodes." Jesse also gives credit to The Tinsley Group for engineering the project. "We could not have completed a project this size, buying mostly used equipment, without their help."

When asked about the future, Jesse says he doesn't even want to think about doing another project right now. He says that he wants to take the time to perfect all the new technology they have acquired, and make the most of their new capabilities. 🌐



Our customers expect profit boosting innovation. PGLR delivers.

Precision Geometric Log Rotation (PGLR) is a real-time rotation verification and correction system that ensures you get the

best turn on every log. It uses a standard TriCam scan zone and works on most log turners. USNR is paving your road to profit.



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HHP, Incorporated Reaping the rewards of investing

EQUIPPED WITH NEWER TECHNOLOGY AND READY FOR NEW MARKETS

After investing in updated technology for several years, HHP, Inc. is now ready to take advantage of all the benefits. With one last project under its belt there are no bottlenecks to impede the flow.

Rounding out improvements to downstream processes, a carriage optimization upgrade is allowing this hardwood operation to achieve full benefit of its investments in newer technology. Along with improved supportability and a secure upgrade path, the mill is achieving better performance than it hoped for.

HHP, Inc. is a hardwood operation located at Henniker, New Hampshire. The operation consists of a hardwood sawmill, dry kilns, pallet manufacturing, and a debarking and chipping plant. Also under the HHP umbrella is a cut-to-length logging operation that supplements the business by providing saw logs and pulp wood. Ross D'Elia is a partner in the operation and describes HHP as an integrated forest products company.

The sawmill produces 10 mmbf of lumber annually, with 75% sold green and 25% sold dry. The dry lumber has traditionally been marketed domestically, but in recent years export sales to Asia and FSC certified lumber to Europe has increased.

Ross recently chose to upgrade to USNR's YieldMaster G3 hardwood carriage optimization system. Though not a requirement for the upgrade, Ross also chose to switch out the existing L4 scan heads for refurbished DynaVision L400 scan heads. The original YieldMaster StereoScan carriage optimization system was installed in 2003 along with a new 3-knee Cleereman carriage. Ross said that at the time it was a good fit for the operation,

and a good start for an automated processing solution. The speed of the carriage was matched to the speed of the optimization package. Ross recognized that with the ensuing years there were many technological advancements, and new systems were faster and more compact. He wanted to bring the HHP's carriage breakdown process up to current capability standards as well as a contemporary level of supportability.

Ongoing investment

Ross commented, "To USNR's credit, the company has been upgrading its systems as new technology has become available." Ross went on to say, "We felt very comfortable with USNR. We knew USNR was a big company and had the resources to make the investment (in R&D). Especially over the past few years when other companies may have been just struggling to stay afloat and not making investments in R&D and engineering. We felt USNR would be able to give us the best bang for our buck."

John Seifert, USNR account manager who worked with Ross on this project, commented, "The project entailed upgrading the YieldMaster G3 software platform, reusing the existing console, handles and scan frame, and replacing everything else. The computer hardware is now standard, so with this upgrade HHP has the same state-of-the-art industrial computers that USNR uses in all its optimization products."

"The performance of the machine was way higher than our expectations. The machine has been very consistent in recovery and speed, and with every species."

The YieldMaster optimization platform, originally developed by Inovec, utilizes DynaVision L4 series sensors. The speed and simplicity of this combination are the features that make it desirable for hardwood applications. The DynaVision L400 sensors allow faster processing for higher throughput, and extend the life cycle of the system.

With the YieldMaster optimization system, the sensors are each 4' long and project a laser line every 1' down the length of the log. Each sensor houses 2 cameras. They are calibrated to tell how far the log is away from the sensor and from the saw line. As a log is loaded and dogged the sawyer initiates the scan, and as the log travels toward the saw the sensors collect snapshot data from the reflection of those laser dots on the log. As the log moves forward toward the saw the data is filled in between the 1' increments.

John explained, "The YieldMaster log breakdown system is not as sophisticated as the MillExpert system, but hardwood mills like HHP are only processing for 4 sides minimum opening face (MOF). They want to achieve a very accurate opening board to a pre-determined size, then they square up the log and send it to a resaw. They are not doing a whole log breakdown (as offered with MillExpert), so the speed and simplicity of the YieldMaster is really good for their requirements."

Implementing the upgrade

HHP hired a contractor to run the new cabling for the system, and the challenge was to make sure that everything was wired correctly so that the switch over time from one system to the other would be minimal. Ross said it took about 3 days to complete. "It was seamless to almost anyone else, but it took a lot of effort. It didn't disrupt our production whatsoever." USNR's project engineer, Jeff Storey, was assigned to manage the upgrade project from start to finish.

"I've put in a lot of different systems, and there have only been 2 or 3 times that have paid for themselves quickly. This install will indeed pay for itself in a short time."

He began with an onsite specification design and review meeting, working with the mill personnel and their electrical contractor to ensure that the project was carefully planned for a well co-ordinated installation and start-up. Mill management was pleased to see the upgraded system started up and running with negligible interruption to its production.

Once the switchover was implemented, a USNR service technician retuned and sped up the carriage knees. He also worked with the mill's operators to help them understand the system's expanded parameter sets and become familiar with all of the improved system's capabilities.

Calculating performance

The project was completed in September of 2011, and Ross said, "The performance of the machine was way higher than our expectations. The machine has been very consistent in recovery and speed, and with every species." He explained that sawing yellow birch is different than sawing red oak. Red oak logs tend to be bigger. Yellow birch logs may have more taper or sweep, and their average diameter is smaller. With the diverse parameter setup options afforded by the YieldMaster G3 the system produces the desired optimized results for each species sawn. He says, "It is still doing the same thing towards achieving our goals, which is



Logs queue up for scanning and processing.



The YieldMaster scanner is positioned above the logs and scans each one after it is loaded and dogged on the carriage.



Utilizing YieldMaster's MOF solution, the sawyer opens faces on a hardwood log.

minimum opening face and putting very little slab into that waste stream."

Ross went on, "We've seen a definite increase in production because of ease of operation and consistency of the scanner. We've seen an uptick in our recovery. We're getting more lumber out of the logs than we did before." Ross also said that, though the main reason for doing the upgrade was to ensure the ongoing supportability of their system, "to our surprise we got a machine that outperforms the existing, old style scanner by far. I've put in a lot of different systems, and there have only been 2 or 3 times that have paid for themselves quickly. This install will indeed pay for itself in a short time."

Ross is an expert when it comes to managing his business. "We track everything: inventories, recoveries and overruns. In each of our log rows we have identified the volume, price and grade. When we process those rows we compare the sawmill production to our purchase price for the logs so we can determine the spreads in both grade and yield. That has always been critical for us." Ross also explained that newer technology helps to track each step in the process so that it becomes more rapid and more seamless. He said, "As soon as the last board goes through the trimmer and is dropped into our bin sorter we will know the grand totals."

Ross calculated the mill was processing in the range of 165,000 board feet each week before the upgrade, and is now sawing approximately 190,000. "That's 25,000 feet more per week that we are putting through the same line. It's probably an increase of 14-15%. That's huge." Ross also explained that there was enough capacity built into downstream processes that they didn't develop any new bottlenecks with the increase in production.

Ross appreciated the fact that, though not a lot of training was required because the new interface was similar to the existing system, the USNR technician did spend time working with the operators to take advantage of all the tools the system has to offer. Not only is the system faster, but the sawyer has become very comfortable with its accuracy due to improvements in parameters. Now he tends to trust the system and spends much less time rescanning or overriding the solution. That is an additional factor to the increase in throughput.

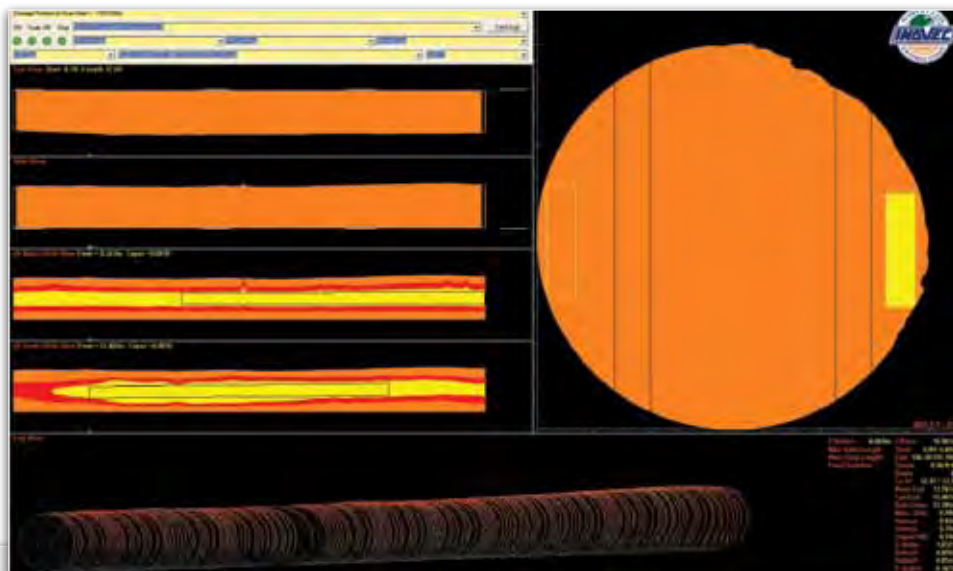
Besides Ross, key personnel who were involved with the project were Steve Gilman, HHP's millwright; Orbit Gould who is the sawyer; and Chris Barrett, the local electrical contractor who ran the

"That's 25,000 feet more per week that we are putting through the same line, an increase of 14-15%. That's huge."

new cabling. USNR's John Seifert, account manager, and Scott Parvin and Marc Popick, optimization specialists, were also involved.

Reaping the rewards

Ross says that HHP has spent a lot of money over the last several years updating its systems and that there really isn't any weak link in the process. He added that as markets improve he may consider adding additional kiln capacity or a dry grading line, but for now he's focusing on marketing their products to a much broader audience on a global scale. "I can't think of anyplace else that we could better spend our money than to get our name and product out there." 🌐



USNR YieldMaster G3 Optimization with StereoScan 3D scanning delivers very accurate opening faces. StereoScan provides tools to put management in full control of the MOF faces on a species-by-species and log-by-log basis.

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- ▶ The deceleration ability of the spindles reduces shock loading
- ▶ Spindle deceleration reduces block failure due to premature chucking and split edges at core limit
- ▶ Spindle deceleration decreases split veneer edges at the core
- ▶ Triple spindles reduce operating costs and improve recovery

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Scan this QR code with your smart phone to view a video of the triple spindle in action.



These small diameter cores were peeled on a multi-spindle lathe.



Entire mill in the palm of your hand

USNR IS BRINGING MOBILE COMPUTING TO A MILL NEAR YOU

Mobile computing is pushing the boundaries in industrial environments. Now USNR has brought the tools of wireless mobile computing into the wood processing world utilizing mobile devices for controlling lumber sorting operation. This is one of many areas that mobile devices, or personal digital assistants (PDAs), will be used by operators to control processing functions from the palms of their hands.

A lumber processing operation in the US southeast region recently invested in major upgrades to its planer mill with a new trimmer, sorter and stacker line, supplied by USNR. The existing PLC5 programmable controls system in the new area of the mill was changed to the Allen-Bradley ControlLogix® 5000 platform with Ethernet communications protocol. As part of the improvements USNR provided a controls system that utilizes PDAs to control the sorter processes.

PDAs replacing consoles

To control the mill's new 70-bin sorter, USNR supplied 5 mobile devices. These devices effectively

replace 11 consoles (each console typically controls 6 bins). In addition to the mobile devices, USNR supplied a human interface touch screen monitor situated at the stacker operator's area, and another in the control room. One of the PDAs is carried by the sorter operator, the Quality Control person carries a unit, and the sorter supervisor has another unit in his office. At all times the sorter can be controlled by the sorter operator, and monitored by the stacker operator, QC, sorter supervisor, and anyone else who carries one of the devices.

The mobile devices offer an overwhelming abundance of real time data in the palm of the hand. Through communications with the PLC, the devices allow the operator to remotely control all the functions of the sorter. They also provide a powerful communications tool so that anyone with a device can tell at a glance the status of any of the functions of the sorter, and of its components. From one worker to another on the same shift, and one shift to the next, the devices provide reliable information and messages through the Message Center.

Safety features have been addressed in the implementation. To perform a function such as jogging the discharge deck, the operator must hold his finger on a button on the screen until the desired jog is accomplished. If he removes his finger, the deck stops. Also, if communications from a device are lost even momentarily, the PLC immediately disregards all inputs from that device. That way, if there should be a drop in the signal for any reason, the device in question cannot inadvertently control the sorter's functions.

More efficient operation

Operation at the sorter has become much more efficient, reducing downtime and manpower. An operator no longer needs to walk hundreds of feet to perform routine operations through the HMI, because he can access all sorter functions from his current location. Management of bins is enhanced because the operator can access bin functions from the floor chain elevation, where he can also manage the discharge decks. The operator has the ability

The mobile devices offer an overwhelming abundance of real time data in the palm of the hand.

to discharge any number of bins while standing adjacent to the floor chains, rather than having to be at one of the consoles on the walkway above. This also improves package staging to the stacker.

Operators rapidly embraced this technology. Today PDAs in society are so common, and in the mill environment the information available at a glance is so abundant, that training is much simplified compared with using consoles.

The system operates on a dedicated wireless infrastructure on a secure in-plant network. The wireless access point allows a range for the devices of up to 700 feet with a clear line-of-sight.

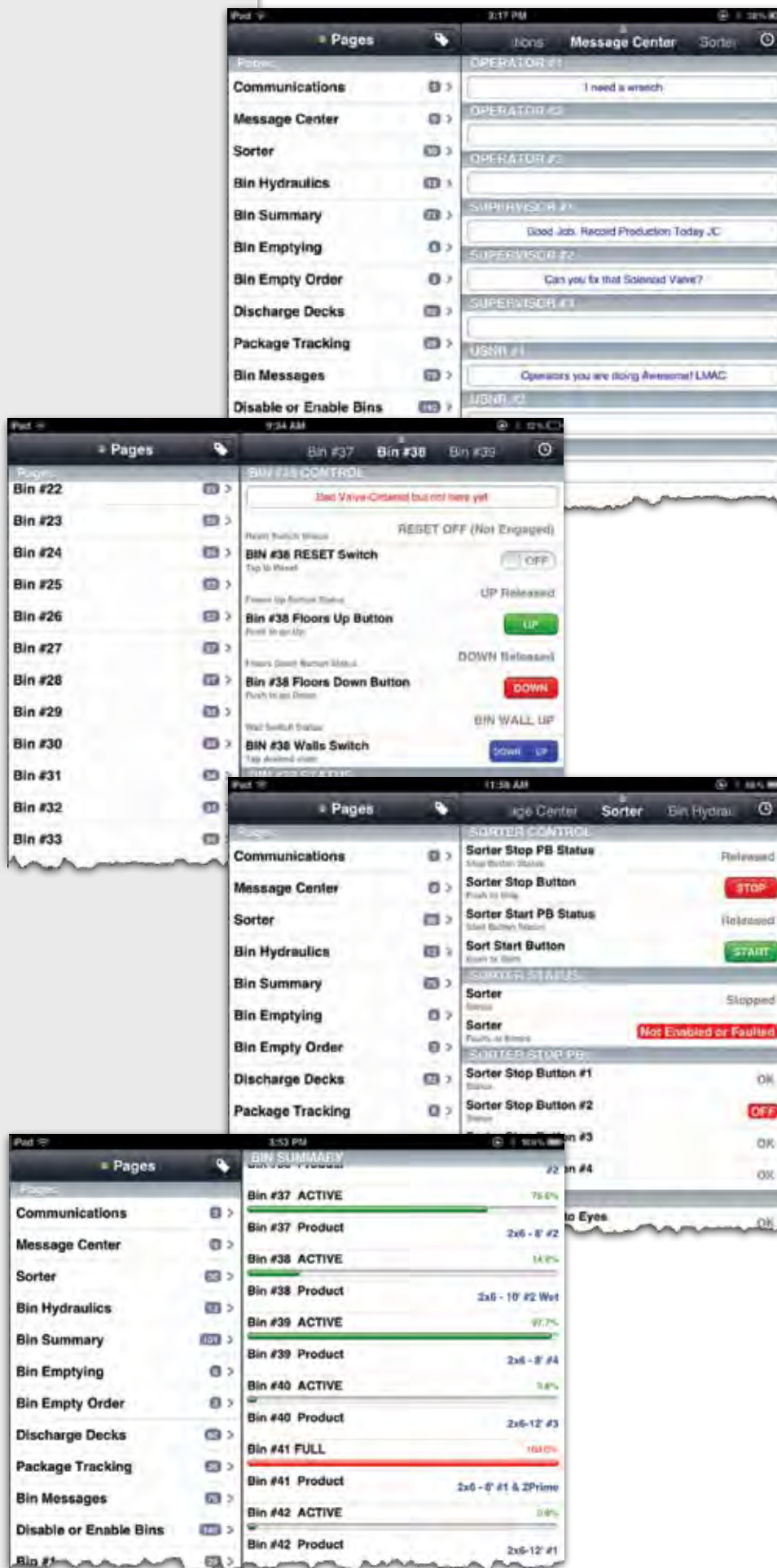
Benefits of USNR's wireless machine control through mobile devices include the following.

- ▶ Real time data in the palm of your hand
- ▶ Mobile machine monitoring and control
- ▶ Powerful information and communications capability
- ▶ Replaces consoles, reduces capital cost
- ▶ Easier troubleshooting and maintenance
- ▶ Reduces downtime
- ▶ Built-in safety features
- ▶ Dedicated wireless infrastructure, on secure in-plant network
- ▶ Device range: 700 feet (line-of-sight)
- ▶ ControlLogix operating platform (or similar)
- ▶ Ethernet is required
- ▶ Available as an upgrade to USNR controls systems or with new installations

For USNR, this new use of mobile computing technology has garnered much interest and will soon be used to control many more processes in the mill. It is currently being offered with new capital projects or as an upgrade to existing USNR controls systems. For more information please contact us at 800.BUY.USNR, +360.225.8267, or info@usnr.com.



Through communications with the PLC, the devices allow the operator to remotely control all the functions of the sorter.





USNR Sorter types, features and options

With over 2,000 sorter systems installed worldwide, USNR has the expertise to ensure your next sorting project is a success.

When it comes to lumber sorting systems, USNR's expertise and experience are second-to-none. Along with our acquired brands (Newnes, COE, Moore, Irvington, Hemco, LSI) USNR has more than 2,000 sorting systems installed in mills throughout the world, far exceeding any other supplier. USNR has

delivered sorting systems for all known applications including hardwood, softwood, cosmetic wood and remanufacturing systems.

Our configurations have comprised J-bar, pusher lug and drag chain tops, and tray, deep pile tray, slant tray, slant bin, vertical bin and sling bottoms. We accommodate everything from very small packs to one-half crib sized packs, in every species and density range. USNR sorters have been built for wood from lengths as short as 4' and extending to 28'. Our sorters can operate at speeds ranging up to 240 lugs per minute in some configurations.

Common configurations

Following are features and comparisons of some of the sorter designs and options available from USNR.

J-BAR

J-bars are slower than pusher lug or drag chain systems, but have the benefit of carrying the board rather than dragging it down a skid. J-bars are commonly used in cosmetic or timber applications where the weight of each piece prohibits pushing. In timber applications horsepower is slightly lower than pusher lug or drag chain systems. The typical speed limit for a J-bar sorter in a dimension mill application is in the range of 120 to 140 lpm. Stud systems can run as fast as 180 lpm.



J-Bar sorter

DRAG CHAIN

Likely the most common configuration, drag chain systems can be used almost everywhere. Many mills in the southeast US use the drag chain configuration, and it is gaining momentum over the pusher lug style. The benefits of drag chain over pusher lug designs include the following.

- ▶ The drag chain style offers more positive tracking of boards down the slideways (less wandering).
- ▶ Bowed boards tend to straighten with the weight of the chains, so fewer skews or jams occur.
- ▶ There is no chainway to pinch boards, so clearing jams is easier.
- ▶ There are fewer skews upon sudden stops as the boards are captured by the chain.

PUSHER LUG

Most of the modern Newnes-style sorters have been pusher lug style due to customer preference. The benefits of pusher lug over drag chain designs include the following.

- ▶ The chain does not contact the wood – no greasy marks are left behind.
- ▶ Single pusher bars create less chain damage when a jam does occur, and the chain tracks better as it is guided down the length of the sorter.
- ▶ This style offers the highest speeds. The diverter shaft can be closer to the slideway so the diverter can be shorter than with the drag chain design.

VERTICAL BINS

The most widely used configuration of all sorter bottoms, vertical bins are suitable for most commodity lumber applications. Bin widths are custom-configured to suit product, speed, pack size and building requirements.

Most stud systems are configured with a 2'-9" bin center, but can

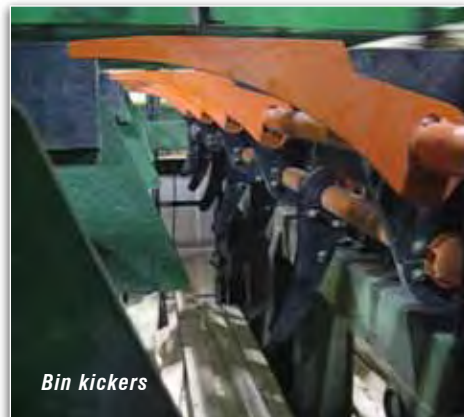
be as narrow as 2'-6". Most sawmill dimension applications are configured with a 3'-0" bin, but can be narrower or as wide as 4'-0". Wider bins are often preferred for hardwood applications because of wide boards and low speeds. Vertical bin sorters are among the most cost effective way to build sorters, and often have the smallest footprint. Following are some common features implemented with vertical bins that work to reduce product damage and noise, and facilitate the even fill of lumber in vertical bins.

Live bin walls

In addition to reducing damage at discharge and improving the discharge control, the live bin walls act to bridge the gap that exists between the bottom bin tube and the floor chains. This (moveable back wall) allows a shorter bin carriage back, thus allowing the bin to lift higher without impeding wood flow. The end result is a shorter drop into the bin.

Bin kickers

These actuated arms not only deflect wood to two zones within the bin (similar to the older style baffles), but also reduce noise on at least 50% of the fill cycle. Bin kickers are made of UHMW, so each time they contact the board they act as a cushion to reduce the board slap that would otherwise occur if the board dropped directly into the bin.



Bin kickers

Bin deflectors

A new offering, bin deflectors have a similar effect as bin kickers, but are not actuated. Bin deflectors are fixed in the out position, and work to deflect all boards toward the center of the bin. Like the bin kickers, deflectors reduce the tendency of wide boards to stack in a column against the downstream bin wall. At the same time, they deflect the boards so they don't land directly on top of the load, and this reduces the noise that occurs when boards drop into the bin.

Bin chokes

The benefit of bin chokes is to reduce haystacking in a wide bin when filling narrow wood at high

speeds. With a wide bin, the skew angle of short 2x4's often exceeds the limits of the walls, and any boards that protrude into the walls can catch on the bottom bin tube.

With many retrofit bin systems USNR has added bin chokes to mimic a narrower bin and reduce skewing of narrow boards while filling. Bin chokes will not reduce noise, but can be a valuable performance option for retrofitting an existing vertical bin sorter.



*Drag chain sorter
(shown with bin baffles)*



Pusher lug sorter



Tray sorter



SLINGS

Slings are a cost effective alternative to bins. There is much less steel in the design of a sling sorter, as the sling acts as both a wall and a carriage. Contemporary sling arrangements can unhook and re-hook without manual handling. Slings tend to require a larger footprint, as the centers can't be as close as bins for the same volume. Sling sorters are typically slower than bin sorters due to unloading and re-hooking times.

TRAYS

Tray sorters are most commonly used for delicate handling applications. Trays tend to enact very little board damage as the boards are kept in a single blanket throughout the process. An unscrambler is not required to deliver the wood layer to a stacker. Capacity is limited by length, so the footprint is typically much larger than for a bin sorter. The number of sorts is limited by the number of trays that can be accommodated in the allowable building

height. A sorter with 24 trays would be colossal, with each tray requiring about 24" of height.

DEEP PILE TRAYS

This design is a variation on flat trays, and allows more wood volume per tray, thus a smaller footprint. Deep pile trays are a compromise between flat trays and bins. Often deep pile trays will allow up to 12" of wood depth per tray. Unscrambling is required downstream, and often an unscrambler with a moving pocket is used in lieu of a tipple to discharge a deep pile tray.

SLANT BINS

Slant bins are a variation on vertical bins, and require a lower headroom, but larger footprint.

SLANT TRAYS

Slant trays are a variation on horizontal or deep pile trays. They can discharge to a common floor chain (no tipple required), and require a smaller footprint.

When you plan your next sorter investment, whether it is a new capital project or an enhancement of your existing system, you can be assured that USNR has the experience and expertise to provide you with the right solution for your needs. Please contact us at 800.BUY.USNR, +360.225.8267, or info@usnr.com. 



USNR ATTENDS WWPA

USNR's Regional Account Managers Jeff Falk (left) and Sam Pope recently attended the Western Wood Products Association (WWPA) Annual Meeting held March 11-12, 2012 at Portland, Oregon. The meeting afforded Jeff and Sam the opportunity to discuss recent USNR projects and product advancements with WWPA member mills.

The WWPA delivers services to sawmills as well as those who use softwood lumber products throughout the world. WWPA's registered grade mark assures lumber buyers that the products meet or exceed grade specifications and performance standards in both domestic and international markets. WWPA is approved and certified for lumber inspection by several global organizations including the Americal Lumber Standard Committee (ALSC), Japanese Agricultural Standards (JAS), and others. Lumber stamped with WWPA's MSR certification is recognized in many areas of the world for use in wood construction.

WWPA has 46 member mills from the Pacific Northwest region of the US. For more information about the WWPA, go to www.wwpa.org.



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Anthony Forest – MillExpert/LASAR Carriage Optimization systems (3)

Anthony Forest Products has ordered 3 carriage optimization systems for its mill at Urbana, Arkansas. Two of the systems will be upgrades to existing, and the third will be a complete new system. They will all feature MillExpert optimization combined with the LASAR sensors, and new computer hardware.

The two existing systems will be fitted with front-side only scanning, but with the capability to add back-side scanning in future. The third (new) system will be installed complete with both front- and back-side scanning.

Battle Lumber – Trimmer top retrofit

The hardwood mill at Battle Lumber, Wadley, Georgia is retrofitting its existing trimmer with a new multi-saw trimmer top. This retrofit offers the mill greater product flexibility with 17 saws at 1' nominal spacing.

Chisholm Lumber – MillExpert G3 / LASAR carriage optimizer

Chisholm Lumber, located at Roslin, Ontario, has ordered a MillExpert G3 / LASAR optimization package for its 4-knee Cleereman carriage.

Claude Howard Lumber – MillExpert M6 Edger upgrade

The Claude Howard Lumber site at Statesboro, Georgia is updating its edger optimization. The existing software package will be replaced with MillExpert optimization and new computer hardware, while the existing M6 scan heads will be retained.

Eacom Timber - 2 Board Edger lines

Eacom Timber has contracted for the supply of 2 new optimized board edger lines for its mills at Nairn Center and Elk Lake, Ontario. Each line will consist of an unscrambler, lug loader, scanner transfer, SGII positioning table, top arbor edger (1 with top reman head), and edger picker outfeed.

ControlLogix PLC control systems will be installed. Optimization will consist of new scanner frames outfitted with state-of-the-art full coverage BioLuma™ 2900L transverse sensors, and the latest version of the Newnes Sawmill Suite software platform. The new lines will improve recovery and increase uptime with simplified calibrations, improved diagnostics, and supportable hardware.

F.H. Stoltze Land and Lumber – Lineal CSGang Optimization & Controls upgrade

The F.H. Stoltze Land and Lumber mill at Columbia Falls, Montana is upgrading the optimization system for its curve saw gang. The Newnes Sawmill Suite software will be updated to the latest version 7.2 release, with new computer hardware included. The PLC controls will be replaced with ControlLogix.

The existing lineal scan frame will be retrofitted to accept USNR's LPL sensors to replace the obsolete Hydra sensors. The LPL sensors are designed to operate at a very high sample rate, allowing a tighter cross section scan down the length of the piece. They also achieve data density around the circumference of the piece in the range of 0.035". This allows the system to very accurately reproduce the geometric shape of the piece, resulting in a more accurate optimization solution.

High Country Lumber – MillExpert G3/LASAR carriage opt., MillExpert lineal Edger opt. upgrade

High Country Lumber and Mulch will install a MillExpert G3/LASAR carriage optimization system at its hardwood mill at North Wilkesboro, North Carolina. The carriage is a 4-knee, 17° slant design which takes full advantage of front-side LASAR scanning.

High Country is also upgrading its lineal edger optimization platform which will consist of additional Smart TriCam sensors, new dual-quad core processor computers and the latest version of MillExpert software. The sensor and computer upgrades will fully utilize the power of MillExpert's latest hardwood features with lightning fast optimization times.

L&M Lumber – 2 Stackers, Stick Placing system

The L&M Lumber operation at Vanderhoof, BC has ordered 2 new stacker lines, each comprising a radius back unscrambler, low profile stacker (electric actuation) with main hoist, secondary hoist and boxing load mechanism. The secondary hoist allows near continuous stacking operation, and the boxing load mechanism replaces the need for an endpress. The mill will also install a Slant Hopper Stick Placer on one of the lines.

Roseburg Forest Products – Lineal CSGang Opt. upgrade

Roseburg Forest Products at Dillard, Oregon is investing in a major upgrade to the optimization system for its curve saw gang. The Newnes Sawmill Suite software will be updated to the latest version 7.2 release. New computer hardware will be included. The existing lineal scan frame will be retrofitted to accept USNR's LPL sensors to replace the obsolete Hydra sensors.

Royal Mat Inc. – Rebuild main press cylinders

Royal Mat Inc. is a tire recycling plant located at Beauceville, Quebec. The plant has contracted for rebuilds to 10 main cylinders on its Washington Iron Works press. As well, 10 main press ram flanges will be repaired. With these updates the plant will reduce downtime and maintenance costs.



Snider Industries – 4 Conventional Dry Kilns, Kiln Boss controls

Snider Industries has contracted to replace 4 of its existing dry kilns with new USNR double-track dry kilns for its operation at Marshall, Texas. Of note, the existing Moore kilns were built in the 1960's by USNR's manufacturing facility at Jacksonville, Florida. Two of the new kilns will be delivered in 2012 and 2 the following year. Each aluminum-framed kiln will be 26' wide x 120' long. The mill will modernize its drying controls with a centralized Kiln Boss system, and will add boiler monitoring for its steam heat source. These improvements will improve drying efficiency and throughput.

Spanish Trail Lumber – Coastal Planer and Infeed upgrades

The Coastal planer system at Spanish Trail Lumber, Cypress, Florida will receive retrofits that will enhance its capability and efficiency. The planer will be enhanced with top and bottom cutterhead lineal bearing jointer upgrades. The planer infeed table and bridge will be retrofitted with an electric feed roll drive system.

Spearfish Forest Products – Trimmer Optimization, Controls & WinTally upgrade

The Spearfish Forest Products mill at Spearfish, South Dakota will upgrade its trimmer optimization software to the latest Newnes Sawmill Suite version 7.2 release. New computer hardware will be included. The PLC controls system will also be replaced with the ControlLogix platform. The existing LPS2 sensors will be changed out for LPS3 sensors, which provide true differential measurements, steeper wane measurement angles, vastly improved speed and density, and increased reliability over the predecessors. The mill's WinTally™ sorter management system will be updated to the V7 release offering improved features and functionality.



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*Jeff Falk is a Regional Account
Manager in the Pacific
Northwest US, based at
Woodland, WA.*

Jeff's career in this industry began with USNR in 1987 after completing his education in computer applications and accounting. His early days at

USNR were in the accounting realm before he moved on to parts sales and capital sales. Jeff also carries the role of project manager for some of his projects.

Jeff sees his roles in sales and project management as being very dynamic. "Every customer brings a different challenge that needs to be addressed. Working with them to get the right solution, and seeing them meet or exceed their goals is very satisfying."

Jeff wore both hats (sales and project management) for two recent log infeed system projects, and describes both as very rewarding. He says performing both roles allows him to see the full perspective of the project from start to finish.

Away from work Jeff enjoys wine tasting with his wife, and hunting, fishing and working on vehicles with his two sons.

UPCOMING EVENTS

MAY. 18-19
EXPO RICHMOND
Richmond, Virginia

JUNE 28-JULY 1
MLMA
Biloxi, Mississippi

AUG. 25-28
IWF
Atlanta, Georgia

OCT. 2-4
TECHNIBOIS
Quebec City, Quebec

OCT. 17-19
TP & ENERGY EXPO
Portland, Oregon

OCT. 22-26
LES DREV MASH
Moscow, Russia