

Norfolk Southern Leads The Way Again

Major Commitment To Copper Naphthenate Treated Ties Continues Tradition Of Innovation

By Jim Gauntt

In 2004, Norfolk Southern (NS) was the first U.S. Class 1 railroad to start using creosote/borate dual-treated hardwood crossties in its mainline track maintenance program. This divergence from creosote-only treatments, at least for some tie species, was implemented to improve the life-cycle performance of wood ties in high decay areas in the NS system.

NS shook up the industry by being the first to employ an alternative preservative, disodium octaborate tetrahydrate (DOT), as part of a dual-treatment system for wood ties. Since then, most Class 1s and some smaller roads have implemented the use of boron-based technology for wood preservation.

Now, in 2012, NS takes another step forward in the use of alternative wood preservatives. Through this exclusive interview and article, NS announces a significant commitment to copper naphthenate (CuN) and borate dual-treated ties.

“Norfolk Southern has been examining alternative tie treatments for several years,” said Norfolk Southern’s Jeff McCracken, AVP – Maintenance of Way. “Our goal has been to find environmentally friendly and cost-efficient treatments that are as effective—or better than—creosote.”

McCracken continued by saying that Jack Hughes, NS senior research engineer, had devoted a great deal of time and effort to find ways to extend tie life over the past



Mellott Wood Preserving receives its new tank to be installed as part of its complete conversion to copper naphthenate for Norfolk Southern.

“We value our partnership with NS and now know we can fulfill their expectations with capacity to spare for other applications of CuN/borate ties by short lines, contractors and others.”

—Doug Mellott, Mellott Wood Preserving

few years, but finding a reliable supplier for CuN was a problem.

That all changed in 2011 when Nisus Corporation committed to constructing a new manufacturing plant near Knoxville, Tenn., to produce copper naphthenate.

“When that was announced and we learned that it was online for NS service, we began to make plans with suppliers to investigate the steps that would be necessary to put this product to use,” McCracken said. McCracken credits RTA’s annual

meeting for facilitating the decision-making process by all parties involved.

“The final piece of the puzzle came together at the RTA convention in Lake Tahoe last fall. There, all NS engineering, research and material management staff had access to Nisus personnel and the wood treaters who could make this happen,” McCracken said. “A process that could have taken weeks or months to finalize was completed in less than two days. I can’t remember ever having a meeting that was ▶

ONLINE EXTRA

Log onto the digital edition of *Crossties* (www.rta.org) to watch a video interview with Norfolk Southern’s Jeff McCracken.

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this productive and where everything fell so neatly into place.”

The first wood-treating company to step up to the plate was Mellott Wood Preserving Company (MWP) of Needmore, Pa. MWP is one of the smaller RTA member treating facilities and seized the opportunity to do a complete plant conversion from creosote to CuN.

“There were multiple reasons for Mellott Wood Preserving Co., to make this change as soon as Norfolk Southern asked us if we were interested in making the conversion to CuN,” said MWP-VP Doug Mellott. “Among these reasons were erratic creosote supply, escalating creosote prices and our desire to have a product offering that would increase our competitiveness and overall plant capacity. With the operational enhancements that will come with the addition of CuN/borate to our plant, our output capacity will double by the end of the year. We value our partnership with NS and now know we can fulfill their expectations with capacity to spare for other applications of CuN/borate ties by short lines, contractors and others.”

Another RTA member will play a role in advancing CuN technology in 2012. No



With the industry's largest stand-alone borate cylinder, Boatright Railroad Products will provide both creosote/borate and CuN/borate ties to NS and other railroads.

stranger to innovation, Boatright Railroad Products owns the first wood-preserving plant to produce creosote/borate dual-treated ties on a commercial scale.

“Boatright Companies embraces the railroad industry’s challenge to find new and innovative solutions to track maintenance,” said Shane Boatright, CEO of Boatright Companies. “We are very pleased to partner with Norfolk Southern in this new endeavor and look forward to providing both creosote/borate and CuN/borate products to the railroad industry.”

When asked if ramping up CuN production in a timely manner to meet Norfolk Southern’s needs would be an issue, Nisus Corporation Director of Manufacturing Tracy Malone responded, “The biggest challenge has been to go from unfamiliarity with CuN production to sourcing raw materials and then building a brand new plant to make and ship it—all within about six months. Needless to say, things have been pretty exciting around here. We not only have taken the steps necessary to accomplish this in the short run but also believe that when our new capacity comes on line in April, we’ll easily be able to produce the quantities needed for both NS and others that may choose to use QNAP (Nisus’s brand name for CuN).”

Dr. Jeff Lloyd, vice president of research and development for Nisus, said, “Even though QNAP/CuN has been written into

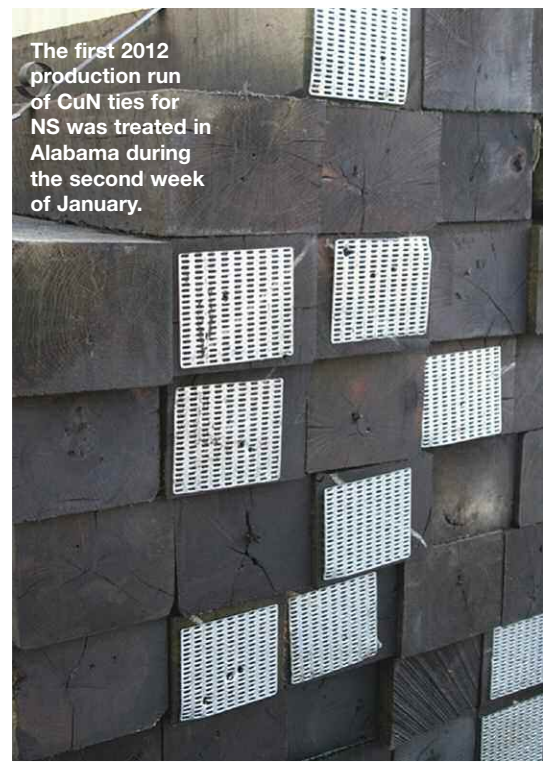
American Wood Protection Association (AWPA) standards for hardwood ties since 2005, the previous label holders for the product were unable to establish its use within the railroad community and were not prepared to meet the very high EPA data call-in costs to maintain their registrations. Because of this, we almost lost the only oil-borne, heavy-duty wood preservative that is not a restricted-use pesticide. I am so proud Nisus was prepared to invest in such a huge undertaking and keep QNAP/CuN available as an option for railroads.”

Even with enough CuN now assured, the question of treating plants establishing the production capacity to treat with a new preservative was also important to understand.

“Although we would have loved to hit the ground running with all cylinders firing, we knew that changes like this are not made with the snap of a finger,” McCracken said, adding that the NS implementation strategy is part of a long-term plan.

“We have designated a zone where CuN/borate ties will be used exclusively going forward,” McCracken said. “The new zone is the coastal area of Virginia, North Carolina and South Carolina, our Piedmont and Virginia divisions. These are heavy-decay zones where we have not been installing borate-treated ties, so we will get the benefit of the borate treatment while also moving forward with CuN.”

He added that there would be more applications to come. “Switch ties, bridge material, and wood material used in areas of ecological sensitivity will likely increase the need for more of this product in our ▶



The first 2012 production run of CuN ties for NS was treated in Alabama during the second week of January.

vision for how CuN may be used on our railroad.”

McCracken hopes 2012 production of CuN will reach or exceed 200,000 CuN/borate dual-treated ties. McCracken said that the Piedmont division could see installations of roughly 375,000 of these ties annually as production ramps up in the coming years.

When asked if this will alter any of Norfolk Southern’s plan for creosote/borate dual-treated ties, McCracken said, “On the contrary, we are increasing our use of creosote/borate dual-treated ties. For example, we have asked Boatright, our original partner in commercializing dual treatments in 2004, to switch over to 100 percent creosote/borate dual-treated ties on all production, for all tie species in 2012.”

That means that NS will now have three plants producing dual treated ties. Boatright with all production committed to either creosote/borate or CuN/borate; Stella-Jones’s Warrior, Ala., plant with some of its total production creosote/borate; and Mellott Wood Preserving with all production CuN/borate.

Managing all of the logistics for NS is the material management group and Jon Zillioux, director - purchasing. “As everyone knows, changes in the supply chain can create disruptions in product supply,” Zillioux said. “We have worked closely with our suppliers not only to pressure test the economics for CuN ties, now and for the future, but also to put a game plan in

place to ensure a steady supply to support engineering’s plans for the Piedmont and Virginia divisions. We are confident we have established a firm supply base to support our existing plan, with room to grow.”

What does the use of CuN as a primary wood tie preservative mean for railroading and the tie industry? At just about 1 percent of the total for the U.S. system-wide tie demand in 2012, the use of CuN certainly does not threaten the dominant role creosote plays in tie treating. And, most observers would agree that it probably never will.


However, for many years, railroads have implemented alternative tie material strategies, concrete, composite, steel, in their construction and maintenance programs. Yet, over the same time period, railroads have shown some reluctance to “try” a new primary preservative. This decision by a major road to venture into uncharted wood-preserving waters in such a substantial way sets yet another cornerstone in the railroading community’s commitment to wood.

Even though it is only a small change in the status quo in quantity, it is a major statement that wood is the primary product of choice for most applications. It also underscores the point that railroads will



President and CEO Kevin Kirkland stands with a cross-tie section in the new high capacity state-of-the-art copper naphthenate manufacturing plant that Nisus will bring online in the first quarter of 2012.

invest in new technologies with wood, and not just alternative tie materials, when it makes financial sense and the potential for long-term performance is probable. Whatever the long-term outcome of this strategy is, the entire industry will be able to look back one day and credit Norfolk Southern for once again taking the lead in investing in the use of new processes with “wood.” ■



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