Technical Session 5:
Public Utility and Railroad Issues

Assessing Utility Pole Strength with Ultrasonic Stress Waves

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ABSTRACT

The United States power and communication infrastructure relies on the structural integrity of approximately 154 million wooden utility poles. A reliable structural monitoring system is vital to ensure the sustainability of these networks. Several comparison studies by U.S. utilities have indicated that ultrasonic nondestructive testing (NDT) can produce the same level of efficacy as the partial excavate, sound, and bore process. This study aims to evaluate the remaining strength of removed from service using ultrasonic NDT and comparing with destructive testing. Stress wave tests were collected by an acoustic device (UB1000) designed to generate a narrow-band radiation source of 50 kHz utilizing a high-power piezoelectric transducer. Mechanical testing of wood poles was carried out in accordance with the requirement of ASTM 1036 Standard Test Methods of Static Tests of Wood Poles. This study revealed the potential of the ultrasonic-based NDT for wood pole groundline characterization.

The Role of Wood Utility Poles and Preservatives in Grid Resiliency

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ABSTRACT

Over the past 10 years, the DOE and FERC continue to emphasize the importance of improving grid resiliency in maintaining national security. As the most prevalent material used in utility poles across the United States, wood plays a key role in overall grid resiliency. Ensuring the proper strength and maintaining that strength to the wood pole structure throughout its useful life is a key aspect of one major aspect of grid resiliency, structural resiliency. Since the initial treatment of wood utility poles will eventually fall below protective levels, remedial treatments have always been an effective method to maintain strength of these wood utility poles. In accordance with the typical modes of decay, external remedial preservatives have been utilized on the shell rot prone thick sapwood species, and internal remedial preservatives have been applied to the heart rot prone thin sapwood species. True improvements to structural resiliency can occur with a programmatic and strategic approach to in-service wood utility

poles to provide long-term structural resiliency of an entire system by maintain as healthy of an in-service pole plant as possible.

Assessment of Borate Rods as a Utility Pole Internal Remedial Treatment Beyond a Standard Inspection Cycle

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NO ABSTRACT SUBMITTED

Exterior Fire Retardant Coating for Utility Poles

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ABSTRACT

Wooden materials are used extensively in exterior applications due to numerous desirable qualities as construction materials, such as utility poles, railroad wooden bridges, ties, cladding, sidings, and decks. Flammability, however, is one of the most notable weaknesses of using wood and wood products as construction materials. One of the main fire hazards in outdoor environment is wildfire, such as forest fire, vegetation fire, grass fire, peat fire, bushfire, and hill fire. Wildfire is an uncontrolled fire often occurring in wild land areas across the United States and the World. Therefore, there is an imperative need for the wood protection industry to develop fire retardants to protect exterior wooden structures. A spray-on 100% solid polyurea fire retardant coating was developed that has: 1) Excellent fire retardancy performance; 2) Good weatherability; 3) Water/ rain resistance; 4) Short curing time (15 minutes) and 5) Durability during transportation, handling, and processing at jobsite.

DCOI Migration in Soil from Utility Poles and Comparison of Detection Methods

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NO ABSTRACT SUBMITTED

The Railway Tie Association: Past, Present, and Future

Nathan Irby
Railway Tie Association

ABSTRACT

The Railway Tie Association was organized in 1919. Predecessor groups, dating back to the late 1800s, including The National Association of Railroad Tie Producers, supported the railroad tie industry and worked to preserve forests through conservation. The mission of the RTA is to provide the forum and direction for continual improvement in the life cycle of the engineered wood crosstie system. The purpose of the RTA is to promote the economical and environmentally sound use of wood crossties. RTA activities include: research and development projects, gathering industry statistics, outlining sound specifications, and supporting operations that promote and maintain high standards of quality for wood crossties. From a government affairs perspective, RTA works closely with many strategic partners to support all efforts to ensure the health of the railroad, wood preserving and sawmill communities. RTA host three in-person events each year and publishes in many outlets to provide ample outreach and education for the industry. RTA works to keep tie markets strong and healthy. RTA's ongoing efforts include working to enhance the potential for our members' products and to make sure those products meet the market demands. The key to successful competition in today's railroad industry is information. RTA is your best resource for information about treated wood crossties.