DISCUSSION PAPERS PRESENTED AT WORKING GROUPS 1 AND 2

WORKING GROUP 1

COOPERATIVE POLE RESEARCH PROGRAM

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The Cooperative Pole Research Program, now in its 4th year, has the multi-directional goals of developing new wood fumigants, evaluating replacements for pentachlorophenol in oil as a cedar spray, preventing bolt hole decay, detecting incipient decay, estimating residual pole strength, and understanding the role of pre-treatment fungal colonization on wood strength.

Our fumigant evaluations continue to demonstrate the strong performance of chloropicrin, Vapam, and Vorlex in Douglas-fir poles, with expected retreatment cycles of 10 years for Vapam and 15 years for the remaining chemicals. The newest chemical in-test, methylisothiocyanate (MIT), has been in test for 7 years and continues to perform well. More recent evaluations with gelatin-encapsulated or pelletized MIT formulations indicate a promising future for this chemical. We hope to evaluate fumigant application shortly after conventional preservative treatments in the coming year.

Evaluations of penta alternatives demonstrated the strong performance of this chemical and the difficulties encountered when attempts are made to replace an extremely effective treatment. While several chemicals are performing adequately in protecting cedar poles from shell rot, their performances do not approach that of penta. We will evaluate several more chemicals in the coming year.

The application of chloropicrin to cedar was also reevaluated five years after treatment, using chemical and biological assays. Chloropicrin was detected in all cores examined, with greatest concentrations on the pole interior. However, significant levels were detected in the outer surface suggesting that fumigants may provide some measure of surface protection.

The use of fluorescent labeled lectins to detect chitin containing fungi in wood sections indicates that these chemicals may prove extremely valuable for detecting fungi in wood with minimal weight loss. We intend to further evaluate lectins for estimating wood damage.

This past year we also evaluated several newer methods for estimating residual pole strength including longitudinal

compression, Pilodyn pin penetration, and sonic evaluation. Longitudinal compression was well correlated with modulus of rupture (MOR) and may be a valuable tool for field evaluation of residual pole strength. Pilodyn pin penetration, while not as useful for detecting internal decay, may prove useful for detecting surface damage to Douglas-fir. Sonic evaluation, while still in the developmental stages, has been strongly correlated with MOR in our small beam test. We intend to thoroughly pursue these avenues with the ultimate goal of developing a field practical pole assessment apparatus.

The final area of research in our program is identifying the fungi that colonize air-seasoning Douglas-fir and assessing their impact on wood strength. We have identified a variety of fungi, but still find that Poria carbonica, the most frequently isolated Douglas-fir decayer, becomes increasingly abundant as seasoning time increases. We are now analyzing the volume of data collected and hope to obtain a better understanding of the seasoning conditions that are most likely to produce a decay free pole.

All of our research areas are directed towards solving problems the utility industry is now suffering. Since many of these problems disregard borders, the results of our studies will have applications to Canadian treaters and utilities.