PRESSURE SPADE REMEDIAL TREATMENT FOR POLES

by
Walter V. Inkis
Ontario Hydro

The groundline of standing wood poles has long been recognized as the critical area for wood rot damage. Even on full length pressure or butt treated poles, the preservation levels drop with age to below toxic levels in about 15 to 25 years, allowing decay to start. The spread of decay in poles that are below this toxic level is rapid, reportedly by some to be exponential.
In the past, groundline retreatment work was performed by excavating the groundline and applying preservative by hand, and then installing a protective paper bandage and backfilling. This procedure is extremely labour intensive, especially in locations where rock has been used as part of the backfill.

A new high speed labour saving system has been developed for applying, without excavation, preservation grease from about 4 inches above to 14 inches below the groundline of standing wood poles. Handling of preservative is minimized as the preservative is drawn directly from the original container and deposited in the groundline area in contact with the pole.

The equipment utilizes preservative grease under pressure of up to 3 000 psi as the hydraulic medium to drive, with a 7 000 pound force, a perforated spade into the ground depositing the preservative in contact with the pole. A powered retract stroke removes the spade from the ground without binding. The preservative is deposited in synchronism with the motion of the spade, ensuring that the proper quantity of grease is applied.
A variety of preservatives are available for use with this equipment. These materials are gelled to retain the preservative in contact with the pole for efficient absorption into the pole and minimum loss to the environment. A 10% pentachlorophenol grease has proven to be a popular preservative with at least a 10-year protective period. Where environmental concerns are high, copper naphthenate, copper-8-quinolinolate, or tributyltin oxide grease preservatives can be used with the injection spade equipment.
In the last 12 years an estimated 400 000 poles have been ground line treated by Ontario Hydro and other utilities. Labour savings of 50% to 70% over the bandage method have been reported. Follow-up testing indicates pentachlorophenol retentions which exceed the toxic threshold by a factor of 2 to 5, after 8 years of injection spade treatment. There is no significant difference reported in the results obtained by either the injection spade or bandage methods. A pole life extension of 10 to 30 years can be expected using a 10-year retreatment cycle starting at 15 years. With increased labour and pole costs, pole retreatment with the injection spade offers an economical alternative to unnecessary premature pole replacements.