

Cedar Pole NEWS

Two Utah Municipalities Use Cedar Poles Almost Exclusively

Provo City Power, the largest municipally owned utility in the State of Utah, provides service to more than 115,000 people with 34,500 connections within its 42 sq. mile city limits.

Provo City Power uses butt-treated cedar poles, ranging from 35 ft. Class 5 to 110 ft. H-4. With 42 miles of transmission lines, the utility typically uses 70 ft. Class 1 cedar poles and carry 138kV. Their 170 miles of overhead distribution lines typically use 45 ft. Class 3 poles, and carry 46kV and 12.5kV.

With 14 substations, all 12,000 wood poles in the utility's system are cedar. Provo City Power is a long-time cedar user because of cedar's durability, long lengths, and ease of climbability.

Founded in 1933, the utilities first power plant was dedicated in 1940, and cedar pole installation began soon after the dedication. The oldest poles in the system are more than 60 years old, being installed when Provo City Power first began operation.

Provo City Power along with five other cities, belongs to the Utah Municipal Power Agency (UMPA) which purchases and maintains a diverse power resource portfolio for its membership. Membership in this agency has helped the utility to operate without a rate increase since 1988. The largest member, Provo accounts for 78% of UMPA's power supply. Energy consumption in 2005 was 776,406 MWh. Power consumption is 35% residential, 50% commercial, and 15% for one industrial customer, Brigham Young University. The university, with more than 30,000 students, is the largest customer in Provo City Power's system.

Storm Response

During a 12-minute microburst storm in the summer 2006, almost 11,000 customers lost power when 47 transmission poles and 35 distribution poles dropped four sections of line to the ground. Within six hours power was restored to more than 10,000 customers.



Forty-two miles of transmission line surround Provo, and is built with 70 ft. Class 1 cedar poles. Distribution lines are also carried on these poles along with considerable cable underbuild.

All poles were replaced, and power restored within three days of the storm.

Western Red Cedar Users: Provo City Power & Logan Power and Light

The utility currently uses an Advanced Control System (ACS) open architecture, dual server SCADA system to monitor and control all of the distribution and transmission substations via hard-wire leased lines and city owned fiber optic lines.

Provo City Power has a regular maintenance program which inspects all poles within a ten-year period. Poles taken out of service are donated to organizations such as the Boy Scouts, or they are dropped off at ranches that have requested poles. The utility also supports the community street lighting program, events such as the Freedom Festival, and tree program.



This three-line junction on a 75 ft. Class 1 cedar pole is near Brigham Young Univ., the largest electrical user in the Provo City Power system.

Logan Light and Power is another municipality whose largest customer is a university. Located 75 miles north of Salt Lake City, with a population of 46,000 the utility has 19,000 connections that cover a 17 square mile area. Logan Power and Light commenced operation of a power plant in 1904.

Western Red Cedar poles are used almost exclusively in the Logan system, and transmission lines are mostly H-2. Distribution poles have been Class 4, but the utility is moving to Class 2 and Class 3 cedar poles in the future. There are about 6,000 poles in their system. Most of the cedar poles have been butt treated, but Logan Power plans to use more full-length treated cedar poles in the future.

Increased voltages throughout the utility include transmission voltage to 138kV and distribution voltage is to 12.5kV. As major streets are widened to accommodate traffic, the loop line around the city is being converted from 45kV to 138kV.

The Utah Association of Municipal Power Systems (UAMPS) delivers power to Logan Power and Light, one of its members. About 20% of this power is hydro generated, and 80% is from fossil fuel generation. Two projects, in which Logan Power has ownership, include a two-unit coal-fired, steam electric 1800 MW generation station in Delta, UT, 100 miles southwest of Salt Lake City, and a 900 MW joint venture plant of Pacific Corp. and Southern Nevada Water Authority. Logan Power also participates in a wind power project.

Inspection and maintenance is conducted by Logan Power, and poles taken out of service are donated to organizations such as the municipal golf course.



Above, part of the ongoing loop line conversion from 46kV to 138kV, poles were originally located on the opposite side of the street before this line was rebuilt. This double circuit 138kV line uses 75 ft. Class H-1 cedar poles. Below, a typical 12.5kV cedar distribution pole, this line uses 45ft. Class 4 poles.



Pole Preparation, Treatment & Inspection

With more than a century of use, Western Red Cedar poles continue to be one of the best pole materials available.

Preparing the Poles

Once a tree is selected for poles, they are felled, limbed and cut to proper length.

At the peeling yard, the outer bark and protruding knots are peeled with a roughing head. A finishing head smooths it, leaving a good shell of sapwood for treatment.

After the pole is peeled, it is classified for length and class size. An inspector measures the pole's circumference six feet from the butt, and at the tip. All poles must conform to the American National Standards Institute (ANSI) or Canadian Standards Association (CSA) for knots, straightness, spiral grain, and other properties.

The inspected poles are stacked with similar sized poles to season in a storage deck. The climate of the area where the poles are stored determines the length of air seasoning. Air or kiln drying substantially reduce seasoning checks that might occur after being installed and exposing untreated wood.

Poles with acceptable moisture content are selected for treatment. The pole is then incised, or perforated, to proper depth in the groundline area for additional penetration and retention of preservative in this area susceptible to decay.

Preservative Treatment

Several highly effective preservative treatments are used for Western Red Cedar poles. All are EPA registered preservatives and include pentachlorophenol, chromated copper arsenate (CCA), or ammoniacal copper zinc arsenate (ACZA).

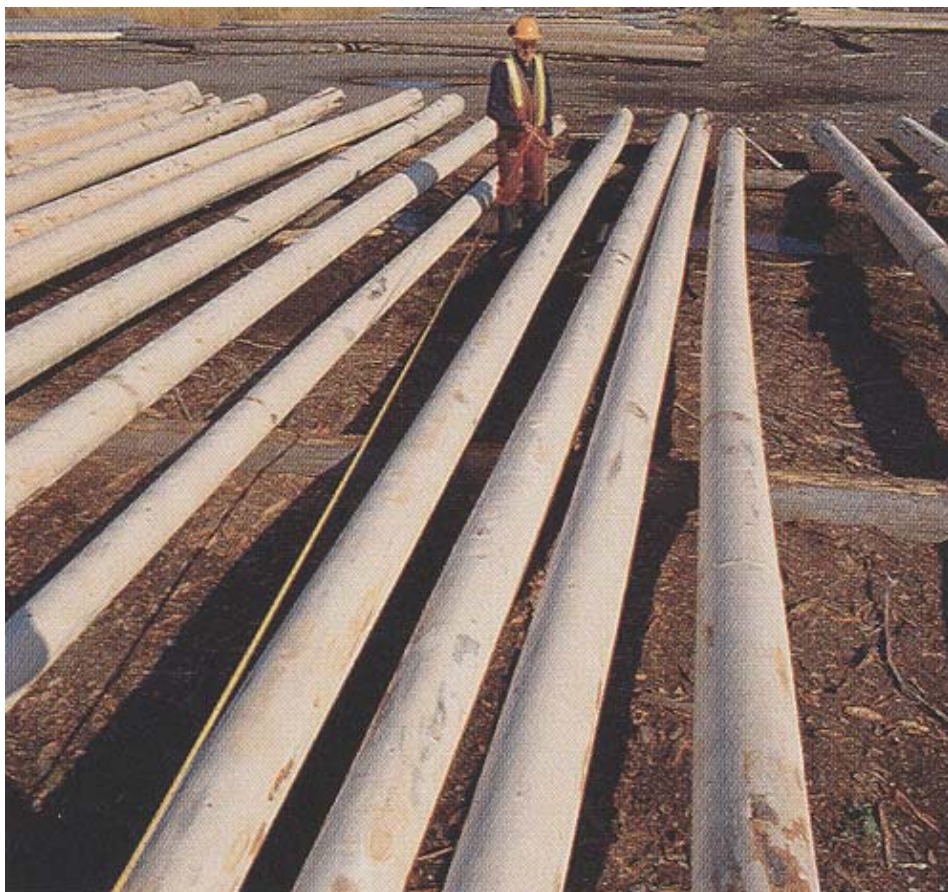
Butt-treated poles are set vertically in a tank and treated with pentachlorophenol or copper naphthenate to one foot above groundline, to AWPA or CSA standards. Cedar is the only species where this economical method of treatment can be used.

Full-length treated poles are pressure or thermal treated, to AWPA, CSA, ASTM standards.

During pressure treatment, preservatives are forced into wood cells in a closed cylinder, or retort, under pressure. Although not required, many utilities request groundline incising for treated poles.

Full-length thermal treatment is a two-step process. The hot cycle expends the air in the outer layers of wood and expels some of the air and water vapor. The cold cycle causes the air and water vapor to contract, creating a partial vacuum that draws preservatives into the wood cells.

(continued on page 4)



Poles are given a final inspection for classification and length before shipment.

Cedar Pole NEWS

2405-61st Ave. S.E., Mercer Island, WA 98040
800-410-1917, 206-275-4753, Fax: 206-275-4755
email: info@wrcpa.org

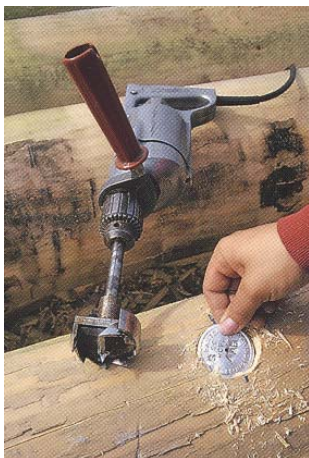
PRSRT STD
U.S. POSTAGE
PAID
PERMIT #315
SEATTLE, WA

Pole Preparation, Treatment & Inspection

Total Quality Management

Western Red Cedar poles are inspected several times from harvest to shipment.

After treatment, poles are inspected for proper penetration and retention of preservative. Tests are in accordance with AWPA or CSA standards. Inspection certificates are furnished upon request by treating companies or independent agencies.



A tag, or brand, is used to show the producer, location, and date of manufacture for each pole.



This increment core boring checks for preservative penetration, and is sent to a laboratory for assay to determine preservative retention.

To assure long pole life, WRCA members have developed extensive quality management programs to assure white wood requirements are met or exceeded before treatment and to check treatment results. Independent inspection agencies are also used for this purpose at the buyers option. When inspected by an independent agency, the agency marks the pole, usually a hammer mark, on the butt, tip, or both.

DID YOU KNOW?

Western Red Cedar is about 85% heartwood which produces chemical compounds that naturally resist decay, fungi and insects.

Western Red Cedar has a very low shrinkage factor and is superior to all other coniferous woods in its resistance to warping, twisting and checking.

Cedar Pole News is a publication of the Western Red Cedar Pole Association, which is solely responsible for its content.

The Western Red Cedar Pole Association can be reached at 800-410-1917, and at www.wrcpa.org.

Printed in the U.S.A. on recycled paper.
Copyright 2007, Western Red Cedar Pole Association

*Check out our website--
www.wrcpa.org*