



WORKING LIVE CAN BE MANAGED SAFELY

By Dave Kenney, Chatham-Kent Hydro

Working live is a necessity for all utilities. No matter how brief, power interruptions inconvenience customers and are a source of lost revenue for utilities. No matter what the task at hand, or the type of pole a lineman is working with — wood, steel, concrete or fiberglass — the rules remain the same: safety procedures should always be followed to the letter.

We at Chatham-Kent Hydro ardently agree with this mindful approach to live line maintenance and distribution main-

tenance in general. Our company, which supplies power to 34,000 customers in Chatham-Kent, an urban area in the Canadian province of Ontario, has a health and safety committee which assists with the development of a full range of live-line maintenance procedures.

The group includes linemen and management to ensure that installation protocols take into account all aspects of the task at hand, from equipment to man-power. One of the committee's assignments has been to develop installation

and live-line protocols for steel poles. Chatham-Kent Hydro first purchased steel distribution poles in 1996 when looking for an alternative to wood poles and an answer to the environmental issues that surrounded their disposal.

BASIC RECIPE FOR INSTALLATION

Chatham-Kent Hydro's line crews follow the same basic procedures for wood and steel poles.

We stress two things in all live-line maintenance: second point of contact and concentration. We also have an emer-

gency plan in place and practice CPR and rescue operations at least twice a year. Ongoing safety training is also an important part of our safety regimen.

Theoretically, there is no difference in installation procedures between wood and steel. Our staff was concerned about the use of steel, so we developed stricter procedures for steel pole installation. These procedures include more cover-up on the lines, more clearance from steel to live conductors and grounding the pole to isolate the line in the event of an accidental contact with an energized circuit.

With a typical live-line job, the linemen at Chatham-Kent Hydro work in teams of three, with two of the crew in the bucket truck. Each wears rubber gloves to handle the line safely. The third lineman is on the ground as an observer: first to make sure that installation protocol is followed; and second, for rescue if needed.

Chatham-Kent Hydro replaces some 250 poles per year. Approximately 100 of these replacements are steel poles.

STEP BY STEP

This is our guide for steel pole installation on a 27,600 volt circuit with a 4,000 volt underbuild. By its very nature, live line and utility maintenance overall is a dangerous undertaking. Proper safety precautions are required at every step of the process, with every type of pole. The crew will complete a job plan and tailboard conference and obtain a hold-off on the circuits.

(Note: RIV nut on bottom section must be in line with the overhead line [vertical & semi roll] and across to the overhead line [A-frame construction].)

PREFERRED METHOD OF INSTALLATION:

1. Check adjacent structures (porcelain wood pins).
2. Install protective cover up on underbuild that will allow movement along phases while steel pole is being raised.
3. Spread underbuild on approved temporary conductor support.
4. Install a minimum of three lengths of cover up on top circuit.
5. Using a double bucket truck, untie and lift center phase or top conductor approximately six feet.
6. Install adequate approved cover up on steel pole that is to be installed.
7. Install temporary ground to base of top section to bond truck and pole to

system neutral.

8. Install ratchet binder cant hook at lowest of point of attachment on top section to be raised.

9. Mark friction point on bottom section to allow a 21" to 27" overlap of top section (check manufacturer's specifications).

10. Raise top section of steel pole with radial boom derrick truck using approved web sling. Make sure to continue maintaining safe limits of approach.

11. Align welds on top and bottom section of pole to allow ease of friction fit.

12. Put a slight down pressure on boom to ensure sections are joined properly.

13. Tie in top or center phase conductor.

14. Relocate remaining phases.

15. Secure pole. With cover up in place, remove old pole.

16. Remove cover up, starting with furthest phase.

17. Disconnect temporary ground.

18. Surrender hold-off.

BENEFITS OF STEEL WITH LIVE LINE

Steel distribution poles help utilities keep distribution systems intact and lines live, according to George Manning, formerly a chief executive of Energy Cooperative, a utility holding company based in Ohio. "If a wood pole is hit by an automobile, there's a good chance it will shear and fall down, bringing down other poles in the distribution line. This almost always causes a power outage," said Manning.

He continued, "In the same situation, a steel distribution pole will only dent. Since no other steel poles are

downed or damaged, there is no power interruption. The lineman can work live to replace the dented pole during regular hours. With steel poles, labor and equipment costs are reduced. And, we don't lose revenue because of unforeseen power outages."

As Manning testified, keeping electric power flowing to customers is of great importance. That's why most utilities have made live line maintenance a common practice. Working live allows a utility to avoid power outages, increase system availability and enhance service reliability. Live-line maintenance is mandatory when it is not possible to transfer or shut down electrical power. Working live is preferred for installing switches, replacing insulators or installing a distribution or transmission pole.

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