Q. Tab 4.1: Distribution Reliability Initiative, Page D-2

Footnote 7 states:

> ***The use of compression sleeves to laterally join aerial conductor is not compliant with current design standards as this reduces the structural integrity of the aerial conductor between insulated contact points and represents additional single-points of failure. This is typically done to quickly return the feeder to service after a conductor breaks in service.***

Please describe the current design standard for laterally joining aerial conductors.

A. Footnote 7, Page D-2, Tab 4.1: *Distribution Reliability Initiative* has an error. The word *compression* should be replaced with the word *automatic*. The complete revised footnote should state:

> "The use of ***automatic*** sleeves to laterally join aerial conductor is not compliant with current design standards as this reduces the structural integrity of the aerial conductor between insulated contact points and represents additional single-points of failure. This is typically done to quickly return the feeder to service after a conductor breaks in service."

The current design standard for laterally joining aerial conductors is *compression* sleeves.

Newfoundland Power adopted the use of automatic sleeves for use as an alternative to joining conductors by means of compression sleeves in 1993.[1] However after 9 years in service these automatic sleeves began showing signs of premature deterioration, in large part due to our severe environmental conditions.[2] The potential risks to public and employee safety, as well as system reliability prompted the Company to discontinue the use of automatic sleeves by the fall of 2002.[3]

Newfoundland Power's annual distribution line inspection program identifies locations where automatic sleeves remain in service. In the year following the inspection, automatic sleeves identified for replacement are removed as part of the *Rebuild*

[1] Compression sleeves require the use of a specialized compression tool and are relatively labour intensive to install. Automatic or "quick" sleeves were quick and easy to install and did not require the use of a specialized tool.

[2] See the 2004 Capital Budget Application, Volume III, Distribution, Appendix 2, Attachment E for further detail on automatic sleeves.

[3] Mechanical failure of a corroded automatic sleeve would result in line separation and the potential of an energized line dropping to the ground, presenting a public safety hazard. This hazard would also exist for line personnel performing energized work. In addition to mechanical failure, there is the risk of electrical failure of the sleeve creating an open circuit. This is particularly hazardous if a sleeve is on a neutral conductor. Voltage differences could be present across an electrically open sleeve on a neutral conductor that would be hazardous to line personnel. Mechanical or electrical failure of automatic sleeves can each result in customer outages.

Distribution Lines project.[4] Automatic sleeves are also identified for replacement during engineering assessments as part of the annual *Distribution Reliability Initiative* project.

[4] See the 2014 Capital Budget Application, *4.4 Rebuild Distribution Lines Update* for further detail on identification and replacement of automatic sleeves.