Q. Further to the response to NP-NLH-022, please explain why the ground wires have not been designed for the same radial ice weight as the high voltage conductors. Clearly, the ground wire would have lower mechanical strength than the high voltage conductor, and would therefore be more susceptible to breaking, and creating a short circuit, if the same radial ice weight accumulated on it as on the high voltage conductors,

In the response explain what the consequences would be of designing the ground wire for the higher ice accumulation.

A. The standard design practice outlined in CAN/CSA C22.3 No. 60726-10 is to design for a given radial ice thickness on conductors and ground wires, not for a uniform radial ice weight. For example, in the 50 mm zones, a 50 mm radial ice accumulation was assumed on conductors, ground, and optical ground wires. The exception noted in the standard is as follows:

> **6.3.2 Ice data**
>
> The experience of some Canadian utilities is that in some locations the ground wire (GW) accretes as much radial ice weight as the larger-diameter conductors. This is partly due to the higher elevation of the GW, the higher temperature of the phase conductor, and possibly the comparative torsional stiffnesses. In such locations, it is recommended to design the GW for the same linear unit weight of ice as for the phase conductor.

There has been no evidence to support the exception noted in “6.3.2 Ice data” in Newfoundland and Labrador and hence no justification to expend additional funds

to further reinforce the ground wire and structures. Therefore, the general provisions of the standard were followed.

The ground wires, conductors, and structures are all designed to withstand their respective meteorological loadings and any of these elements can be designed to withstand increased loadings at additional cost.