Q. Reference: Response to Request for Information PUB-NLH-212

The response to Request for Information PUB-NLH-212 states in Attachment A, at page 9 of 34:

"…[CSA/CAN C-22.2 No. 60826:06] Figure CA.2 indicates a radial ice thickness of 40 mm at 10 m which translates into a 1:50 year return period ice thickness of 60 mm (2.4 inches) at the line conductor elevation. The method for calculating increase return period loads indicates a 1:100 year ice thickness of 66 mm, a 1:150 year ice thickness of 69 mm (2.7 inches) and a 1:500 year ice thickness of 78 mm (3.1 inches)."

Page 10 of Attachment 1 to the Request for Information PUB-NLH-212 states:

"Investigations by NLH following the 1994 ice storm revealed that the original design ice loads of 25 mm to 38 mm (1 to 1.5 inches) have a return period of approximately one in ten years (1:10). Based upon the location of the transmission line on the Avalon Peninsula the 1 in 25 year return period (1:25) was determined to be between 48 mm and 66 mm (1.9 and 2.6 inches) of radial ice and the 1 in 50 year return period (1:50) between 60 mm and 75 mm (2.35 and 3 inches) of radial ice. Consequently reinforcement of the 230 kV steel lines on the Avalon Peninsula between 1998 and 2002 utilizing a radial ice thickness of between 66 mm and 75 mm (2.6 and 3.0 inches) resulted in improved reliability of the 230 kV transmission system with a return period between 1:25 and 1:50 years based upon line and location.

Please explain in detail, how a 1:500 year return period for 78mm of ice developed using the CAN/CSA-C22.3 No. 60826:06 standard can be considered appropriate on the Avalon Peninsula when studies and measurements indicate that a 1:50 year return period is only slightly less, between 60mm and 75mm.

A. Return period estimates presented in Hydro's response to NP-NLH-004 were based on the latest available information and methodologies as presented in the 2010 edition of CAN/CSA-C22.3 No. 60826. The 1996 study which estimated ice loads on the Avalon and Connaigre peninsulas was completed almost 15 years prior to the release of the 2010 version of the CSA standard, and while Hydro is not in a position to comment on the development of the CSA standard, the authors would have had access to the results of the 1996 study when both the 2010 edition of the standard and the preceding 2006 edition were released.