Q. The report Upgrade Unit 1 Stack Breeching, July 2011, p. 5 states "*After the modifications to the FD fans were complete and the Unit 1 breeching had been in service for a one-year period, an internal inspection of the breeching took place. The inspection revealed considerable erosion damage to the borosilicate insulation. Some of the borosilicate blocks had fallen away from the walls and ceiling. The erosion was attributed to the increased FD fan capacity which delivered an increased volume of air at higher average flue gas velocity of 50 feet per second compared to the original velocity at 43 feet per second. Erosion of the internal borosilicate insulation liner has been an ongoing issue inside the Unit 1 stack breeching since Unit 1 was up-rated.*" Further to response P2-PUB-NLH-59, as the insulation was rated for 120 ft/sec, how did the up-rate have any effect on the insulation from an erosion perspective? What other issues could have caused the insulation to erode?

A. Hydro previously stated in the response to P2-PUB-NLH-59 that the breeching internal insulation block was rated for 120 ft/sec. This was based on manufacturer's information provided at the time the block was installed. However, it is now expected that the rating may have been based on clean air as compared to the particulate laden flue gas produced at Holyrood. Hydro recently requested clarification on this point from the manufacture and it has been confirmed that the velocity rating is based on clean air.

The oil fired boilers at Holyrood discharge a concentration of fly ash in the flue gas stream during normal operation and an increased concentration during soot blowing operation. A flue gas stream containing fly ash is abrasive on the surface of a conveying system. The degree of abrasiveness will vary depending on the quality

of the fuel and if a boiler soot blowing process is taking place. Soot blowing is a regular on-line boiler cleaning process whereby fly ash and loose particulate is blasted off the internal boiler tubes using compressed air. The particulate becomes air borne in the flue gas and travels through the breeching on route to the stacks. During the boiler up-rate, the average flue gas velocity increased from 43 to 50 ft/sec. It is expected that the marginal increase in speed, coupled with the abrasive quality of the flue gas, increased the erosion rate on the new insulating blocks.