Q. Further to the response to PUB-NLH-264, section 5.1 of Attachment 1 states that faults at Bay d'Espoir have been classified as "Exceptional Circumstances"; however, the study performed by SNC Lavalin in March 2012, filed as Appendix C10 with Hydro's Application dated April 30, 2014 for Approval to Upgrade the Transmission Line Corridor from Bay d'Espoir to Western Avalon, indicated that operation with additional high inertia synchronous condensers at Soldiers point could alleviate the problem and avoid load shedding for some or all of these faults. Explain why operation with additional high speed synchronous condensers at Bay d'Espoir is no longer being considered.

A. In completing the initial system integration studies (i.e., load flow and stability analyses) to determine the system reinforcements necessary for both the isolated island and interconnected island scenarios, it was necessary to complete analysis such that both alternatives meet the transmission planning criteria and provide very similar system response. This was necessary so that, during the economic analysis of the least cost alternative, no one alternative is unduly penalized with excessive, or unjustified, capital expenditure. To this end, it is understood that within the existing isolated island scenario, a three-phase fault on the 230 kV system at Holyrood, will result in system instability (i.e., loss of Holyrood generation and sizeable load shed) due to the depressed voltages on the Holyrood plant auxiliaries. The analysis of the interconnected alternative with two high inertia synchronous condensers in service at Soldiers Pond[1] revealed that three-phase faults at the Holyrood 230 kV bus would no longer result in system instability. However, the analysis did conclude that system instability could be expected for a three-phase

[1] Recall the criteria for the high inertia synchronous condensers were set such that the system should be stable with one unit out of service for maintenance.

fault on the Bay d'Espoir 230 kV bus due to the simultaneous commutation failure of the Soldiers Pond converter and the disruption to power from the Bay d'Espoir Generating Station.

The system study performed by SNC-Lavalin in March 2012 does demonstrate that the system would remain stable for the three-phase fault at Bay d'Espoir during peak load conditions if all three high inertia synchronous condensers were in operation at Soldiers Pond.

As part of Hydro's winter readiness program, there will be a requirement for all three high inertia synchronous condensers at Soldiers Pond to be operational for the winter season. To ensure system security during the peak load period, it is realistic to have all three high inertia synchronous condensers at Soldiers Pond planned to be in service during high Labrador - Island HVdc Link (LIL) deliveries to the Island. In turn, this will reduce the risk of system instability due to a 230 kV three-phase fault at Bay d'Espoir during the winter season to periods where the synchronous condensers experience an unplanned outage.

Detailed operational studies to be completed in the 2015/2016 time frame will identify the inertia requirements and risks over the full range of operating scenarios. The results of these operational studies will shape the operating instructions, transfer limits and appropriate system configurations with the LIL in service.