Re: 2009 Capital Projects: $500,000 and Over p. B-4 - Purchase of Spare Stator Winding

Q. a) Have there been any stator winding failures at Bay d'Espoir since 2000?

b) Have there been any stator winding repairs at Bay d'Espoir since 2000?

c) Have NLH's inspections of the existing stator windings disclosed any specific cause for preventative maintenance, required by the condition of, or an actual or perceived defect in, the existing windings?

d) Has NLH maintained spare stator windings at the Bay d'Espoir station in the past, and if so, during what time period?

A. a) As stated on Page 5, Section 3.4 of the report entitled "Purchase Spare Stator Winding for the Bay d'Espoir Hydro Generating Station", in 2001, there was a failure during testing, which resulted in damage to a single stator winding coil in Unit 1. The repair involved the removal and replacement of one of the 180 coils which make up the stator winding, at a cost of $88,175. This was the only stator winding failure at Bay d'Espoir since 2000.

b) Other than the repair in 2001, the only maintenance performed on the stator windings of Units 1 through 4 since 2000 has been cleaning the stator windings and replacing wedges that keep the stator windings in place.

c) Under normal operating conditions, Hydro cleans, re-wedges and performs various electrical tests on the stator windings as part of the preventative maintenance schedule. Electrical testing, especially on Unit 2, has been

limited in order to prevent further stress to the stator winding. Electrical tests involve applying an increasing test voltage to the stator winding while monitoring the current flow in the winding. Under ideal conditions, voltages of greater than 25 kV can be applied to the winding without a significant increase in the current flow through the winding. However, during recent testing, an applied voltage as low as 13 kV produced sufficient current flow to halt the testing for fear of causing severe damage to the stator winding. The results of this test indicate significant deterioration in the stator winding insulation. For this reason, electrical tests can no longer be performed on Unit 2, thereby restricting Hydro's ability to monitor the condition of Unit 2.

d) Hydro has never maintained a full set of stator windings at the Bay d'Espoir station. However, several individual winding coils have been maintained there since the late 1960s and are still in acceptable operating condition.